PurgoRegen

Clinical Cases Collection Europe

Edition 1

THE Graft
THE Graft Collagen

PurgoRegen

Contents

01

Extraction socket

Guided open wound healing with biologized hybrid bone substitute materials


Prof. Dr. Dr. Dr. Shahram Ghanaati[1], Dr. Sarah Al-Maawi[2]

[1,2] Goethe-University Frankfurt, Department of Oral and Maxillofacial Plastic Surgery, Germany

Case Summary

Nationality	German	Age	Mid-sixties	Grafting Area	6
Chief Complaint	#26 tooth fracture because of several caries.				
Treatment Plan	1. Tooth extraction. 2. Socket preservation. 3. 6 months after bone grafting, implant placed (one-piece ceramic implant).				

	Category	Products	Method	Description of the method
Materials	Bone graft	THE Graft Collagen	Soaking into the PRF liquid	
	Membrane	Solid PRF membrane		Covered solid PRF without other membrane.
	Suture	Resorbable suture	Guided open wound healing	With this method, the wound closure is guided by no force but only adaptation.

	Category	Indication	Approach	Surgical Procedures
Methods	■ Implantology ☐ Periodontology	■ Extraction sockets ☐ Dehiscence ☐ Fenestration ☐ Horizontal bone loss ☐ Vertical bone loss ☐ Sinus pneumatization ☐ Furcation ☐ Peri-implantitis	■ Alveolar ridge preservation ☐ Intra-socket ☐ Bone augmentation ☐ Ridge Split ☐ Lateral ☐ Crestal	■ One-stage ☐ Two-stage ☐ Immediate placement/Immediate loading ☐ Simultaneous approach ■ Staged/Delayed approach

Before

Bone loss observed around the fractured root rest.

After

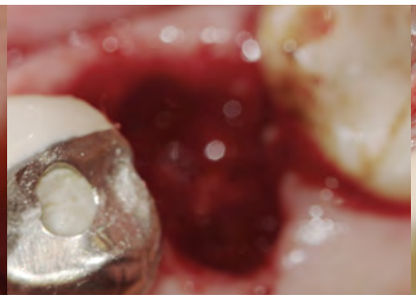
8 weeks after implantation.

Conclusion

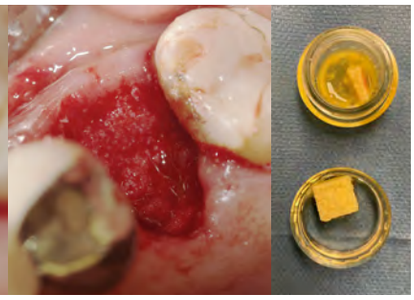
Collagenated bone graft material, THE Graft Collagen allows to preserve the socket and to have a perfect implantation bed.

Case Summary

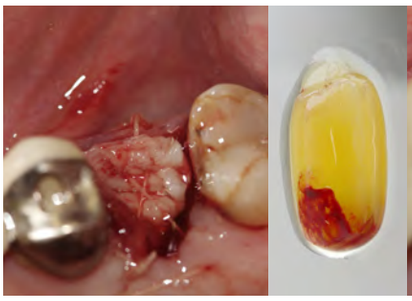
1. Pre-operation. Situation prior to extraction.



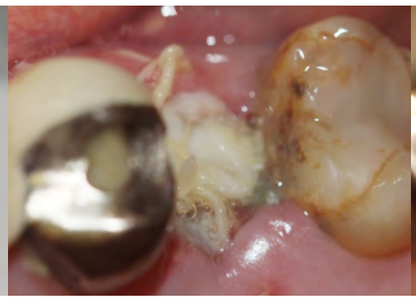
2. Intra-first operation. Situation after extraction.



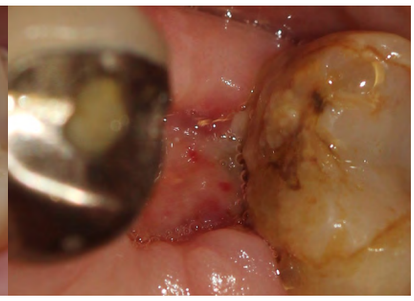
3. Intra-first operation. Socket preservation with The Graft Collagen soaked in liquid PRF for biologization.



4. Intra-first operation. Coverage THE Graft Collagen with solid PRF.

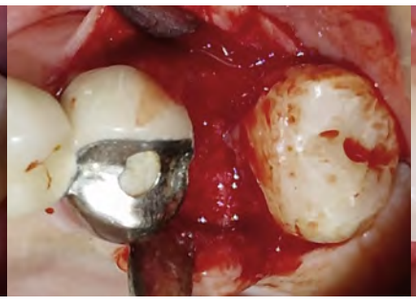


5. Post-first operation, 3 days after operation.

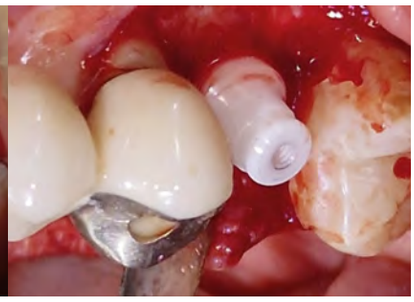


6. Post-first operation, 14 days after operation.

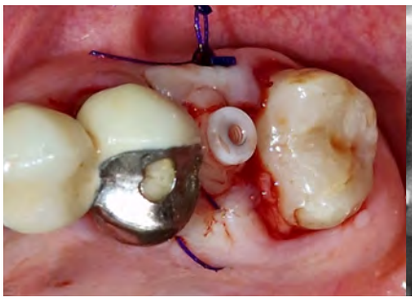
7. Post-first operation, 6 months after operation.



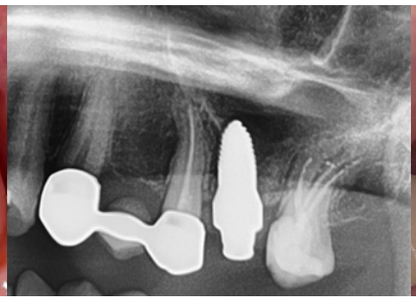
8. Intra-second operation. Building a full-thickness flap without vertical incision.



9. Intra-second operation. Implantation of a SDS one-piece ceramic implant.



10. Intra-second operation. Coverage of the implant with solid PRF and adaptation of the flaps by means of guided open wound healing.



11. Post-second operation, the day after implant placement.

12. Fabrication, 8 weeks after implantation.

Biological approach with tooth discs to stabilize the emergence profile within immediate implants

Dr. med. dent. Peter Randelzhofer

Implant Competence Centrum Munich, Germany

Case Summary

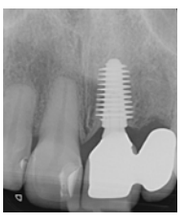
Nationality	German	Age	Early thirties	Grafting Area	1 2
Chief Complaint	#21, 22 had endodontic problem.				
Treatment Plan	1. Extraction #21, 22. 2. Immediate implant placement (2 stage) at #21 with simultaneously bone grafting with mixed THE Graft and PRF. 3. Covered with a tooth disc at #21, 22. 4. Temporary bridge delivered. 5. Final prosthesis delivered.				

Materials	Category	Products	Method	Description of the method
	Bone graft	THE Graft	Mixed with PRF	Fill the gap concept.
	Membrane	None		Instead of membrane, tooth discs covered.
	Suture	Glycolon		

Methods	Category	Indication	Approach	Surgical Procedures
	■ Implantology	■ Extraction sockets	☐ Alveolar ridge preservation	☐ One-stage
	☐ Periodontology	☐ Dehiscence	■ Intra-socket	■ Two-stage
		☐ Fenestration	☐ Bone augmentation	■ Immediate placement/Immediate loading
		☐ Horizontal bone loss	☐ Ridge Split	■ Simultaneous approach
		☐ Vertical bone loss	☐ Lateral	☐ Staged/Delayed approach
		☐ Sinus pneumatization	☐ Crestal	
		☐ Furcation		
		☐ Peri-implantitis		

Before

Right after augmentation of the missing vestibular bone flap.



After

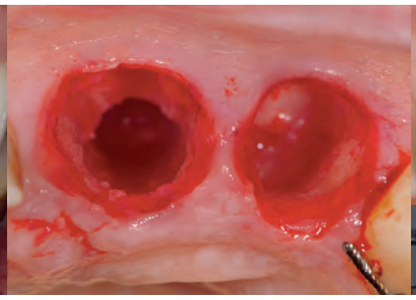
3 months after immediate loading.

Conclusion

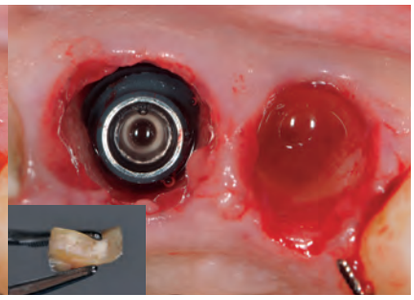
If the periosteum is intact and the alveolus is free of inflammation, simultaneous implant placement with augmentation is possible. Resorbable collagen membrane with a liquid PRF matrix results in very rapid peri-implant soft tissue closure (Guided Open Wound Healing).

Case Summary

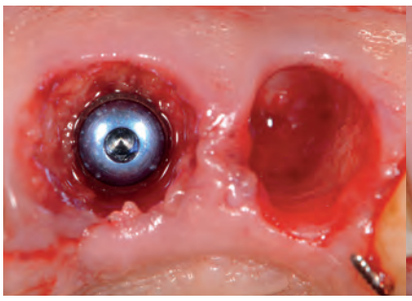
1. Pre-operation. Bad prognosis of tooth #21 and #22 due to endodontic problem, years after a front tooth trauma.



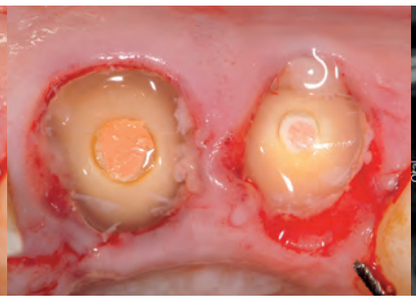
2. Intra-operation. Implant site preparation at the palatal aspect of the socket at #21 after careful extraction of tooth #21 and #22.



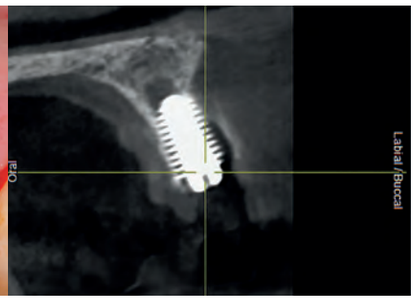
3. Intra-operation. Implant placement (Megagen Anyridge) with 35 Ncm. A tooth disc of 3 mm is prepared as a natural cover to stabilize the dent gingival complex.



4. Intra-operation. Augmentation with mixed THE Graft and PRF of the remaining space between the implant and the socket #21 and the socket itself #22.



5. Intra-operation. Tooth discs in place to minimize the risk of tissue resorption.



6. Post-operation. CBCT right after implant placement. Observed with a good stabilization due to the thread design of the any ridge implant with bone augmentation.

7. Provisional restoration. Screw retained temporary on implant at #21 with pontic at #22 and a magnetic approach at #11 to extrude the tooth disc of the pontic area.

8. Fabric rehabilitation. Stable tissue situation before placement of the final implant restoration.

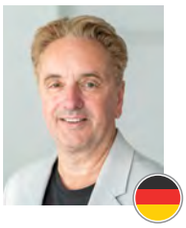
9. Final restorations. Zirconium abutment in place at #21.

10. Fabric restorations. Implant framework and veneer preparation tooth #11.

11. Final restorations. Final ceramic prosthetics #11-22 as an oviate point.

12. Final prosthesis. Final outcome after prosthetic placement 12 months after implant placement and bone grafting.

Immediate implant loading



Dr. Torsten Conrad M.Sc.

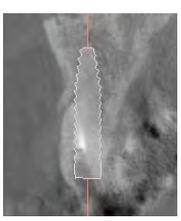
Zentrum für innovative Zahnheilkunde, Bingen, Germany

Case Summary

Nationality	German	Age	Mid-fifties	Grafting Area	2
Chief Complaint	#12 tooth fracture and remained root rest. Loss of the vestibular bone lamella.				
Treatment Plan	1. Preoperative antibiosis IV, control vitamin D status. 2. Preparation of a liquid and solid PRF matrix. 3. Decontamination of the extraction socket. 4. Bone grafting with THE Graft Collagen soaked with liquid PRF matrix. 5. Covering with resorbable membrane. 6. Immediately implant placement and loading with a long-term provisional.				

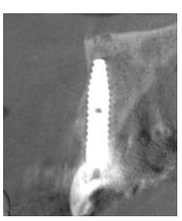
Materials	Category	Products	Method	Description of the method
	Bone graft	THE Graft Collagen	Soaking into the PRF liquid	Collagenated bone graft material was with a LSCC-PRF low liquid matrix and trimmed to compare the size of root rest.
	Membrane	BioCover		Resorbable collagen membrane with a LSCC-PRF high membrane-matrix, crestal coverage of the bone graft.
	Suture	PTFE 4.0	Guided open wound healing technique	Fixation of the collagen membrane.
	Others	HELBO Laser	Photodynamic laser therapy	Decontamination of the extraction socket.

Methods	Category	Indication	Approach	Surgical Procedures
	■ Implantology	■ Extraction sockets	☐ Alveolar ridge preservation	■ One-stage
	☐ Periodontology	☐ Dehiscence	■ Intra-socket	☐ Two-stage
		☐ Fenestration	■ Bone augmentation	■ Immediate placement/Immediate loading
		☐ Horizontal bone loss	☐ Ridge Split	■ Simultaneous approach
		☐ Vertical bone loss	☐ Lateral	☐ Staged/Delayed approach
		☐ Sinus pneumatization	☐ Crestal	
		☐ Furcation		
		☐ Peri-implantitis		



Before

Right after augmentation of the missing vestibular bone flap.



After

3 months after immediate loading.

Conclusion

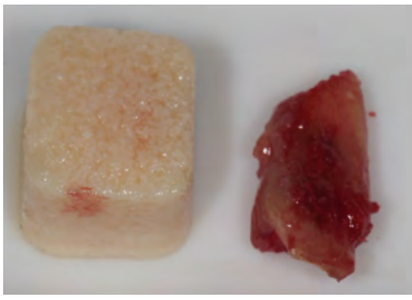
If the periosteum is intact and the alveolus is free of inflammation, simultaneous implant placement with augmentation is possible. Resorbable collagen membrane with a liquid PRF matrix results in very rapid peri-implant soft tissue closure (Guided Open Wound Healing).

Case Summary

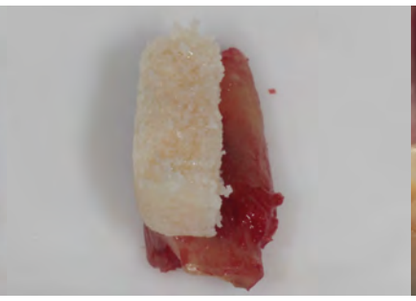
1. Pre-operation. Labial view. Fracture of the vestibular root portion, after loss of the crown.

2. Pre-operation. Occlusal view.

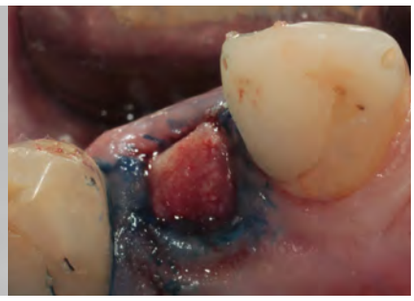
3. Intra-operation. Piezo-based root rest extraction.



4. Intra-operation. THE Graft Collagen was soaked with liquid PRF and #12 root rest was extracted.



5. Intra-operation. Adaptation of the bone graft (THE Graft Collagen) to replace the vestibular bone lamella.



6. Intra-operation. Decontaminated alveolus (HELBO laser) after preparation of the implant bed and bone grafted.

7. Intra-operation. Implant placed (Camlog 3.8-17 mm Progressive Line).

8. Intra-operation. Crestal covering of the bone graft with resorbable collagen membrane (BioCover) and delivered provisional crown.

9. Post-operation, 1 week after bone grafting. Labial view.

10. Post-operation, 1 month after bone grafting. Labial view.

11. Post-operation, 3 months after bone grafting. Labial view. Removed provisional crown.

12. Final prosthesis, 4 months after bone grafting. Labial view.

Bone augmentation performed simultaneously with dental implant placement

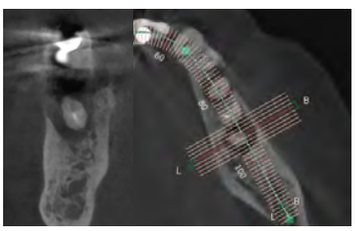
Dr. Jérôme Surmenian
France

Case Summary

Nationality	French	Age	Early sixties	Grafting Area	
Chief Complaint	Patient with severe bone loss around #35.				
Treatment Plan	1. Teeth extraction and immediate implant (2 stage). 2. Bone grafting with sticky bone (THE Graft with PRF). 3. Graft site was covered with PRF membrane. 4. Primary closure not achieved. 5. 2.5 months after healing period, 2nd stage performed.				

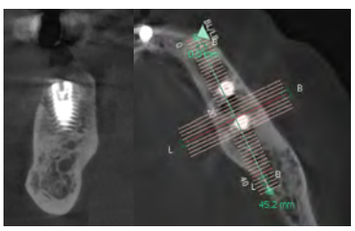
Materials	Category	Products	Method	Description of the method
	Bone graft	THE Graft	Mixed with PRF	Mixed THE Graft (0.25- 1mm size) with PRF for making a sticky bone.
	Membrane	PRF membrane		Covered with PRF membrane.
	Suture		Primary closure	

Methods	Category	Indication	Approach	Surgical Procedures
	■ Implantology	■ Extraction sockets	■ Alveolar ridge preservation	☐ One-stage
	☐ Periodontology	☐ Dehiscence	☐ Intra-socket	■ Two-stage
		☐ Fenestration	■ Bone augmentation	■ Immediate placement/Immediate loading
		■ Horizontal bone loss	☐ Ridge Split	■ Simultaneous approach
		■ Vertical bone loss	☐ Lateral	☐ Staged/Delayed approach
		☐ Sinus pneumatization	☐ Crestal	
		☐ Furcation		
		☐ Peri-implantitis		



Before

CBCT shows severe bone loss and implant integration was achieved at 2.5 months.



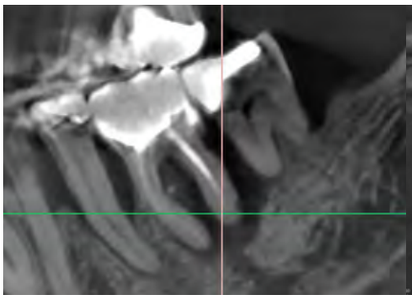
After

Bone augmentation observed around implant.

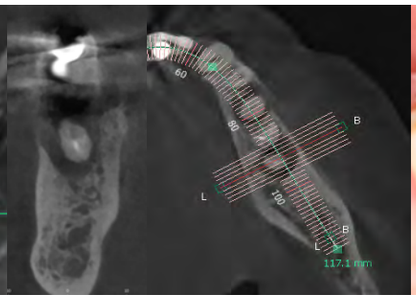
Conclusion

Complete bone regeneration was achieved at 2.5 months post covering implants.
Vascularized bone was observed.

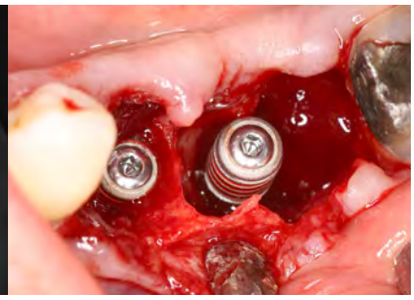
Case Summary



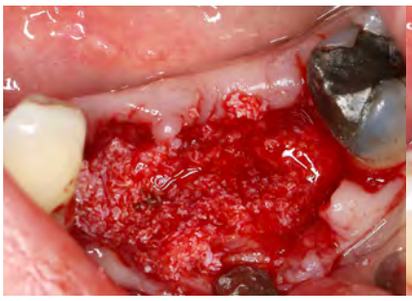
1. Pre-operative CBCT image. It shows bone loss around tooth #36.



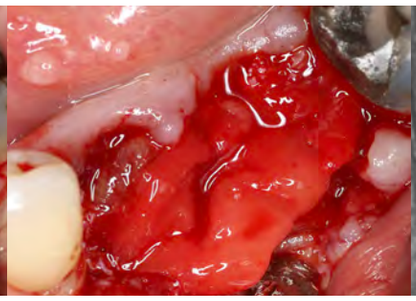
2. Pre-operative CBCT image. Vertical and horizontal bone loss around the mandibular left area was visible.



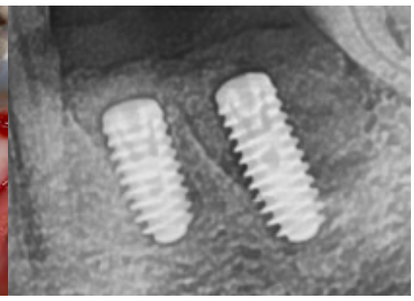
3. Intra-first operative image. Teeth were extracted, implants were immediately placed.



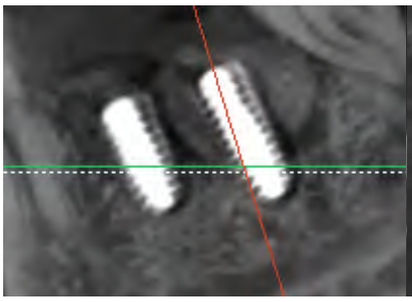
4. Intra-first operative image. Sticky bone (THE Graft with PRF) was applied.



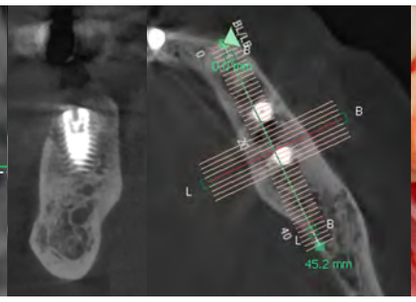
5. Intra-first operative image. Covered with PRF membrane.



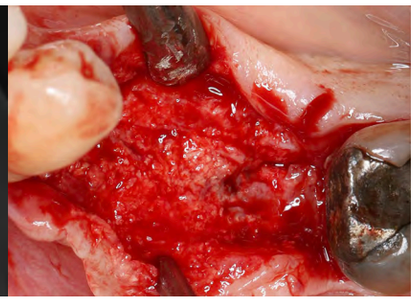
6. Post-operative, panorama image, the day after implants placement and bone grafting.



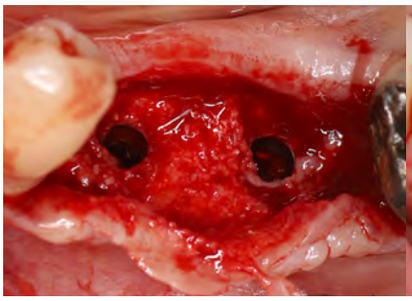
7. Post-first operative CBCT image, the day after implants placement and bone grafting.



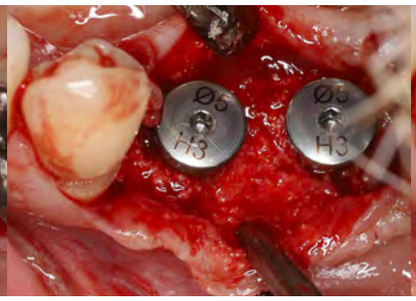
8. Post-first operative CBCT image, the day after implants placement and bone grafting.



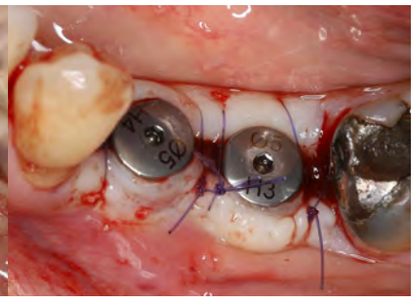
9. 2nd stage, 2.5 months after the procedure. We observed very good bone volume covering implants.



10. 2nd stage. Removed cover screws.



11. 2nd stage. Connected healing abutments.



12. 2nd stage. Sutured.

Posterior mandible bone atrophy treated with osteo-immunology protocol

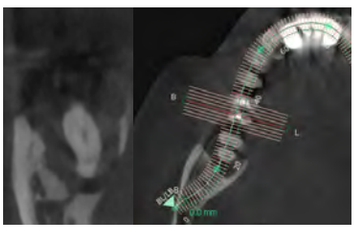
Dr. Jérôme Surmenian
France

Case Summary

Nationality	French	Age	Mid-fifties	Grafting Area	7 6
Chief Complaint	The patient had a severe bone loss around the endodontic tooth.				
Treatment Plan	1. Teeth extraction. 2. Graft grafted with sticky bone (THE Graft with PRF). 3. Covered by THE Cover (stiff type) membrane and PRF membrane. 4. Primary closure was achieved, using a single interrupted suture.				

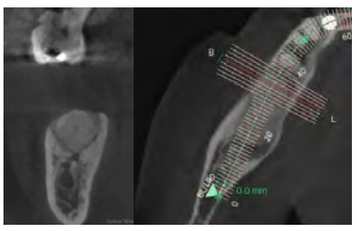
	Category	Products	Method	Description of the method
Materials	Bone graft	THE Graft	Mixed with PRF	Mixed THE Graft (0.25- 1mm size) with PRF for making a sticky bone.
	Membrane	THE Cover (stiff type), PRF membrane		Covered THE Cover and PRF membrane.
	Suture		Primary closure	Primary closure was achieved, using single interrupted suture.

	Category	Indication	Approach	Surgical Procedures
Methods	■ Implantology ☐ Periodontology	■ Extraction sockets ☐ Dehiscence ☐ Fenestration ■ Horizontal bone loss ■ Vertical bone loss ☐ Sinus pneumatization ☐ Furcation ☐ Peri-implantitis	■ Alveolar ridge preservation ☐ Intra-socket ■ Bone augmentation ☐ Ridge Split ☐ Lateral ☐ Crestal	☐ One-stage ■ Two-stage ■ Immediate placement/Immediate loading ■ Simultaneous approach ☐ Staged/Delayed approach



Before

Radiographically observed severe bone loss.



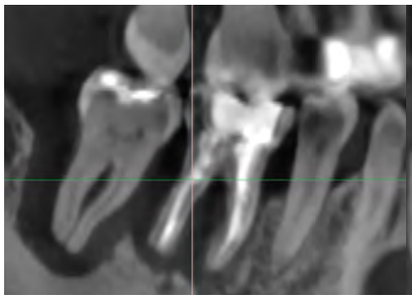
After

New bone volume observed on CBCT.

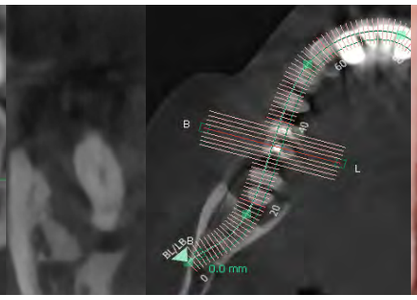
Conclusion

2.5 months after healing, bone regeneration was achieved, and two implants were placed. We notice healthy new bone regeneration. Using a stiff collagen immune membrane in an inflammatory situation acts as an immune barrier and allows bone regeneration without fibrosis.

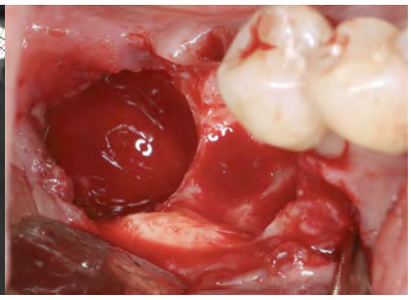
Case Summary



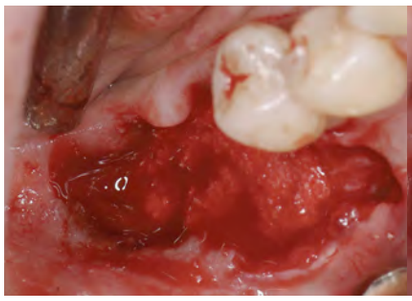
1. Pre-operative CBCT image. It shows severe bone loss around the endodontic tooth.



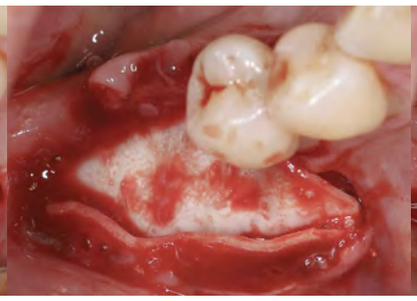
2. Pre-operative CBCT image. Vertical and horizontal bone loss around the mandibular right area was visible.



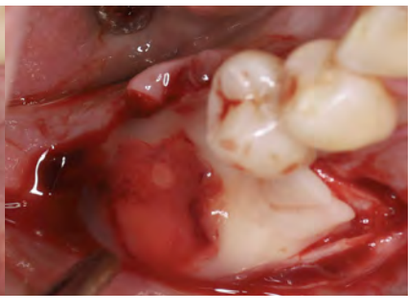
3. Intra-first operative image. After extraction and area cleaning, massive bone loss is observed.



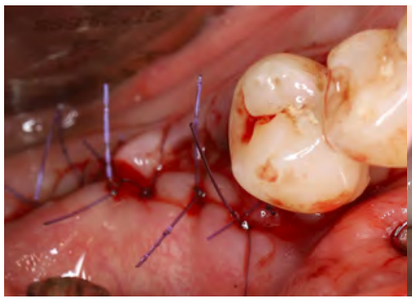
4. Intra-first operative image. Sticky bone (THE Graft with PRF) was applied.



5. Intra-first operative image. Covered with THE Cover (stiff) membrane.

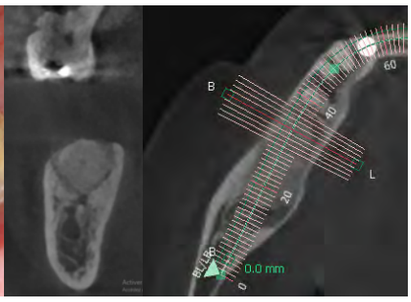


6. Intra-first operative image. Covered with PRF membrane.

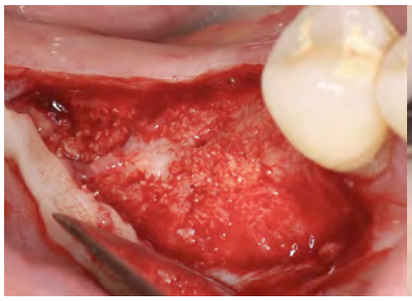


7. Intra-first operative image. Single interrupted sutured.

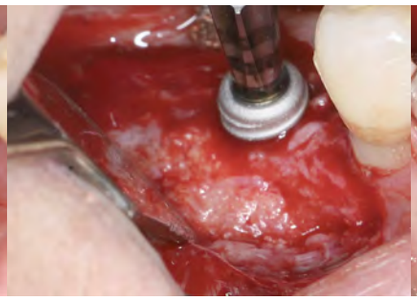
8. Post-first operative image, 2.5 months after GBR. Clinically observed healthy soft tissue.



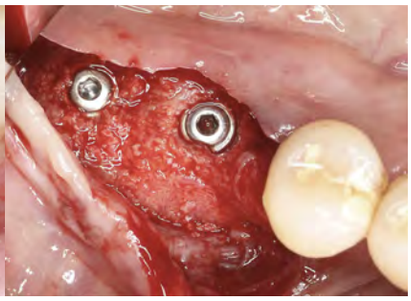
9. Post-first operative CBCT image, 2.5 months after GBR.



10. 2nd stage, 2.5 months after GBR. Incision and flap elevation.



11. 2nd stage. Implants placement.



12. 2nd stage. Implants placement.

02

Horizontal-Vertica/ bone defect

Horizontal ridge augmentation in anterior atrophic mandible

Dr. Colombo Fabrizio
Italy

Case Summary

Nationality	Italian	Age	Mid-twenties	Grafting Area	
Chief Complaint	The patient presented for a treatment of a bilateral agenesis of the upper right and left lateral incisors.				
Treatment Plan	1. #12 and #22 implants (Megagen; Any Ridge) placement and simultaneous GBR with xenograft biomaterial (Purgo; THE Graft) and Collagen membrane (Purgo; BioCover). 2. After 6 months of healing, uncovering and implant loading with two screwed retained acrylic temporary crowns. 3. After 6 months of soft tissue maturation, in order to obtain a convex buccal architecture, a soft tissue management by a connective tissue graft harvested from the palate was performed. 4. After 6 months of healing, temporary crowns were replaced with final zirconia crowns.				

	Category	Products	Method	Description of the method
Materials	Bone graft	THE Graft	Placement of xenograft biomaterial on the exposed implant surface area	THE Graft small particulate size was placed on the wounds in the buccal area.
	Membrane	BioCover	Fixation with pins	Using collagen resorbable membrane for horizontal ridge augmentation.
	Suture	Biotex	Primary closure	

	Category	Indication	Approach	Implant technique
Methods	■ Implantology ☐ Periodontology	☐ Extraction sockets ☐ Dehiscence ■ Fenestration ■ Horizontal bone loss ☐ Vertical bone loss ☐ Sinus pneumatization ☐ Furcation ☐ Peri-implantitis	☐ Alveolar ridge preservation ☐ Intra-socket ■ Bone augmentation ☐ Ridge Split ☐ Lateral ☐ Crestal	■ One-stage ☐ Two-stage ☐ Immediate placement/Immediate loading ■ Simultaneous approach ☐ Staged/Delayed approach

Before

Horizontal bone loss was observed at the start of the therapy.

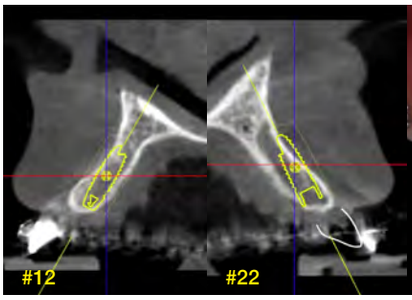
After

Final situation after horizontal ridge augmentation with GBR technique and soft tissue management with CTG (connective tissue graft).

Conclusion

Horizontal ridge augmentation performed using only DPBM and cross-linked collagen membrane is an effective and predictable procedure. In this clinical case, the clinical and radiographic final situation shows the right root mimetism and the sufficient amount of newly regenerated buccal bone around the implants. The one-stage approach is a safe procedure with a short healing time, low invasiveness, and less number of surgeries. It is also important to deliver a prosthesis that allows home and professional hygienic maintenance in the long term. The x-ray exam taken after 5 years of follow-up shows the good stability of the regenerated bone.

Case Summary



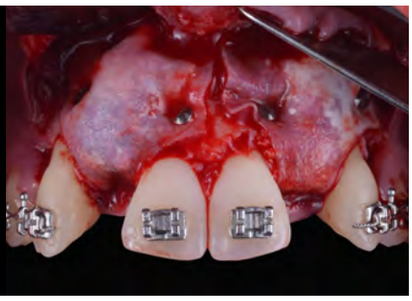
1. Pre-operative CBCT image. Horizontal deficiency of the alveolar ridge observed by CBCT exam.

2. Pre-operative image. Lack of typical convex architecture of the buccal side of the lateral incisors area (frontal view).

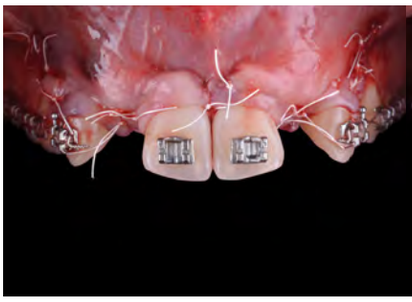
3. Pre-operative image. Lack of typical convex architecture of the buccal side of the lateral incisors area (lateral view).

4. Intra-first operative image. Buccal fenestrations after implants placement.

5. Intra-first operative image. Stabilization of the membrane of the palatal side and placement of THE Graft on the buccal area.



6. Intra-first operative image. Buccal stabilization of the collagen membranes.



7. Intra-first operative image. Biotex completed the primary closure.

8. Post-first operative image, 6 months after GBR. Clinical situation after 6 months of post-GBR healing.

9. Intra-second operative image, 6 months after GBR. Placement of two healing abutments using a minimally invasive full thickness crestal flap.

10. Post-second operative image, 6 months after GBR. Delivering of two screwed retained temporary acrylic crowns during the uncovering surgical session.

11. Post operative image, 12 months after GBR. Cosmetic evaluation after an additive odonto-plastic performed on the upper right and left central incisors. The implant buccal profile is too flat.

12. Intra-third operative image. Placement of a connective tissue graft taken from the palate in a buccal pocket at #12.

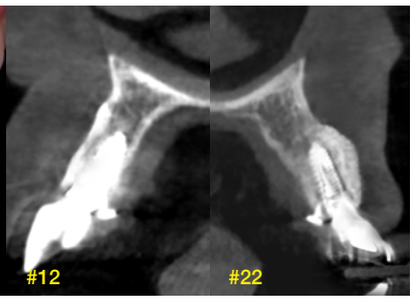
Case Summary

13. Intra-third operative image. Placement of a connective tissue graft taken from the palate in a buccal pocket at #22.

14. Intra-third operative image. 5/0 monofilament suture used to stabilize the connective graft and placement of the temporary crowns.

15. Fabrication, 16 months after GBR. Final impression.

16. Final prosthesis, 16 months after GBR. Delivering of two zirconia screwed retained final crowns.



17. Post follow up operative CBCT image, 5 years after GBR. Observed the good stability of the peri-implant hard tissue.

“Kieler Sushi” two-stage horizontal augmentation

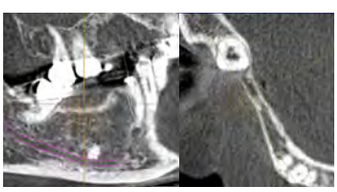
Dr. Oliver Zernial
Germany

Case Summary

Nationality	German	Age	Late sixties	Grafting Area	6 X 4
Chief Complaint	#44-46 were missing teeth.				
Treatment Plan	1. Incision and flap elevation. 2. Application of plasma stabilized "Kieler Sushi" which was made with THE Graft, autologous bone chips, and PRP. 3. Covered with resorbable membrane and fibrin PRF membrane without fixation. 4. Primary closure. 5. 8 months after GBR, implant placement. 6. 9 months after GBR, final prosthesis delivered. 7. 3 years control.				

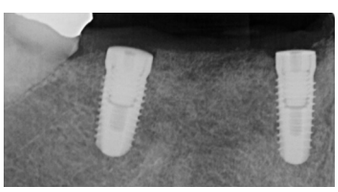
	Category	Products	Method	Description of the method
Materials	Bone graft	THE Graft, autologous bone	Mixed	“Kieler Sushi”: Autologous bone with THE Graft (large size) with Kieler Sushi technique within 60 seconds for making a graft.
	Membrane	Resorbable collagen membrane, fibrin PRF membrane	No fixation	Covered with resorbable collagen membrane and fibrin membrane.
	Suture	Supramid 4-0, Resolon 6-0	Primary Closure	

	Category	Indication	Approach	Surgical Procedures
Methods	■ Implantology	☐ Extraction sockets	☐ Alveolar ridge preservation	■ One-stage
	☐ Periodontology	☐ Dehiscence	☐ Intra-socket	☐ Two-stage
		☐ Fenestration	■ Bone augmentation	☐ Immediate placement/Immediate loading
		■ Horizontal bone loss	☐ Ridge Split	☐ Simultaneous approach
		☐ Vertical bone loss	☐ Lateral	■ Staged/Delayed approach
		☐ Sinus pneumatization	☐ Crestal	
		☐ Furcation		
		☐ Peri-implantitis		



Before

The alveolar ridge was narrowed and insufficient for implant placement and one stage procedure.



After

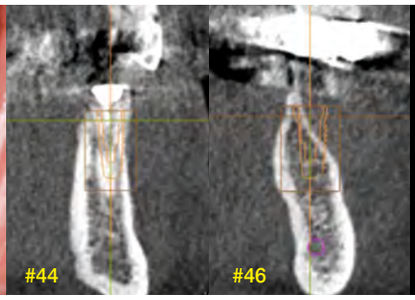
4 months after GBR + 4 months after implant placement, a satisfactory result can be observed.

Conclusion

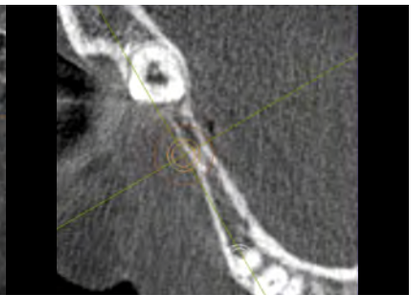
Standard case in implantology – A late sixties patient came to the clinic with a fractured tooth #44 that results in loss of bridge #47 and atrophic bone in #45 and #46. This kind of case appears in the clinic weekly, it is no high challenge for the surgeon but more a question of efficiency. Classic approaches like the Khoury technique, block augmentation, or mesh surgery are scaring many patients because many cases are not treated with implants.
Due to plasma-stabilizing “Kieler Sushi” we can solve those cases quickly, predictable, and efficiently.
According to the “Kieler Sushi”, this case could have been done in one stage but due to the highest predictability, we used two-stage with this kind of high-grade atrophies.

Case Summary

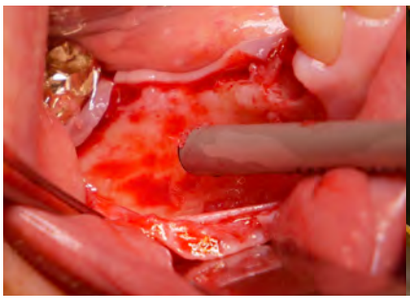
1. Pre-operative image. High grade atrophic ridge under bridge.



2. Pre-operative CBCT image. Radiographically showed need of ridge preservation and removal of #44.



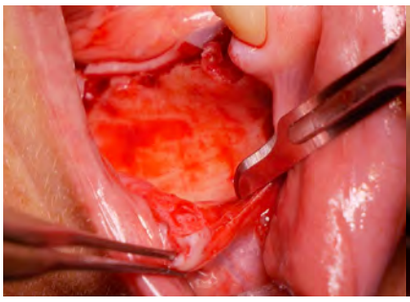
3. Pre-operative CBCT image. Radiographically observed high grade horizontal atrophic bone with sufficient vertical bone, leading to a two-stage surgery with horizontal augmentation.



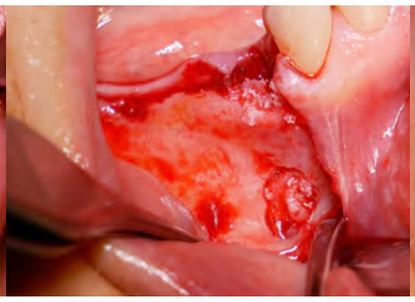
4. Intra-first operative image. Mucoperiosteal flap, removal of destroyed #44, and gaining autologous bone. Only bone harvesting with micro scraper, this results in the gain of “Kieler Sushi” required autologous bone and refreshes also the bone.

5. Intra-first operative image. Preparation of “Kieler Sushi”, within 60 seconds Purgo "THE Graft", PRP, and autologous bone chips according to "Kieler Sushi" protocol is finished.

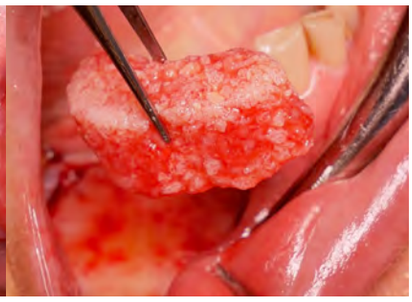
6. Intra-first operative image. The plasma-stabilized “Kieler Sushi” augmentation block was able to be used without mechanical stabilization (pins, meshes, etc.).



7. Intra-first operative image. Mobilization of muco periosteal flap via periost cutting was inevitable.

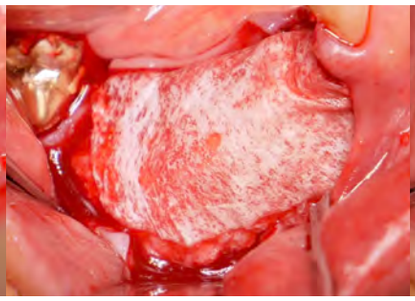


8. Intra-first operative image. Filled socket with parts of “Kieler Sushi”.

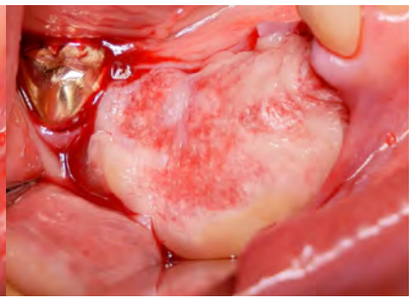


9. Intra-first operative image. Extraordinary stability of the plasma stabilized only. “Kieler Sushi” with THE Graft (L).

10. Intra-first operative image. Sushi block with THE Graft adopts perfect to the pretty complex situation.

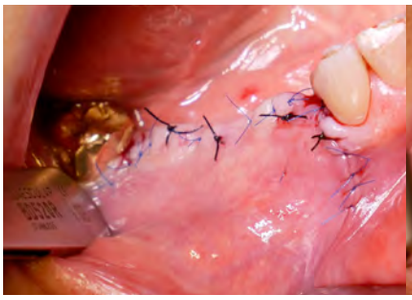


11. Intra-first operative image. Two-stage procedure requires coverage with a resorbable collagen membrane, due to the ability of the “Kieler Sushi” to glue on the defect no pins or screws are needed.



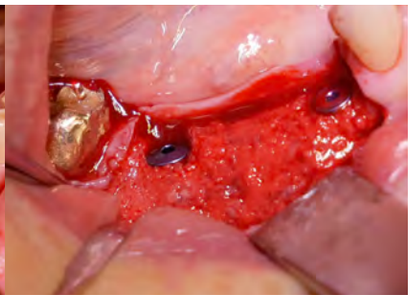
12. Intra-first operative image. Additional coverage with a fibrin PRF membrane.

Case Summary

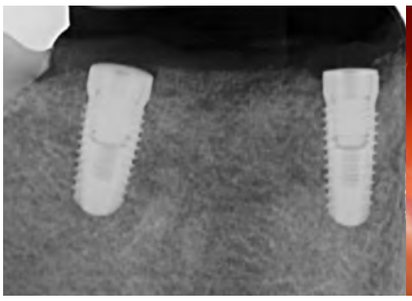


13. Intra-first operative image. Primary closure with supramid 4-0 and resolon 6-0.

14. Post-first operative image. Temporarily prosthetics with an occlusal splint.



15. Intra-second operative image, 4 months after GBR. Full osseointegration with partial remodeling of THE Graft was achieved. The augmentation site is horizontally sufficient and vital, implants placement is ideally possible.



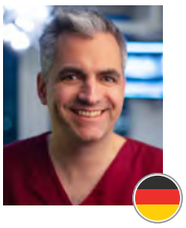
16. Post-second operative P.A. image, after 8 months before prosthetics.

17. Final prosthesis, 3 years after GBR. The stable situation at both implants, due to “Kieler Sushi” with THE Graft was not needed for soft tissue corrections. Therefore, "Kieler Sushi" augmentation technique with THE Graft shows ideal grafting results.

Kieler Sushi description

Kieler Sushi is a special augmentation technique, based on the experience of Dr. Oliver Zernial, CMF from Kiel (Germany). It consists of special treatment with autologous bone, blood concentrate, and bone graft. This special protocol results in a very stable, moldable, and glueable bone with a very predictable augmentation.

Vertical augmentation using Kieler Sushi Technique



Dr. Oliver Zernial
Germany

Case Summary

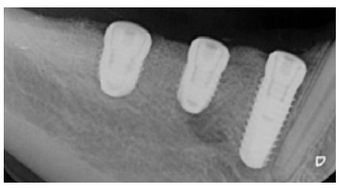
Nationality	German	Age	Early sixties	Grafting Area	7 6 5
Chief Complaint	#46, 47 were missing, #44, 45 were tooth fracture.				
Treatment Plan	1. Incision and flap elevation. 2. Applied the "Kieler Sushi" which was made with THE Graft, PRP, and autologous bone chips (no shells, tenting screws, or meshes). 3. Covered the resorbable membrane and fibrin PRF membrane without any fixation. 4. Primary closure. 5. 4.5 months after GBR, implants placement (two-stage) and biopsy. 6. 8.5 months after 1st GBR, 2nd operation and final prosthesis at same time.				

	Category	Products	Method	Description of the method
Materials	Bone graft	THE Graft	Sticky bone	Sticky bone (THE Graft (0.25-1 mm) and PRF) for Kieler Sushi technique.
	Membrane	Resorbable collagen membrane, fibrin PRF membrane	No fixation	Covered with resorbable collagen membrane and fibrin membrane without pins.
	Suture		Primary closure	

	Category	Indication	Approach	Surgical Procedures
Methods	■ Implantology ☐ Periodontology	☐ Extraction sockets ☐ Dehiscence ☐ Fenestration ■ Horizontal bone loss ■ Vertical bone loss ☐ Sinus pneumatization ☐ Furcation ☐ Peri-implantitis	☐ Alveolar ridge preservation ☐ Intra-socket ■ Bone augmentation ☐ Ridge Split ☐ Lateral ☐ Crestal	☐ One-stage ■ Two-stage ☐ Immediate placement/Immediate loading ☐ Simultaneous approach ■ Staged/Delayed approach

Before

CBCT clearly showed vertical augmentation are needed.



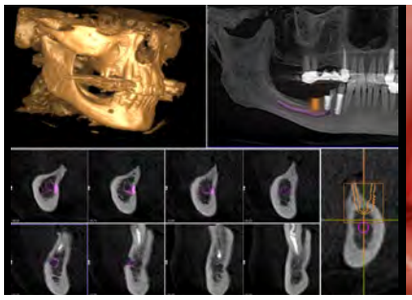
After

8.5 months after GBR + implant placement, radiographically observed bone increased sufficiently for implant placement.

Conclusion

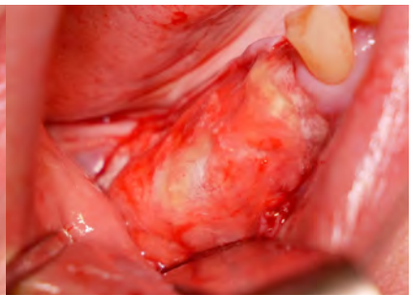
An early sixties patient visited our clinic with horizontal and vertical atrophic situations #46-47. Teeth #44 and #45 were removed too. Two-stage procedure with vertical augmentation in the molar region and ridge preservation after removal of pre-molar was performed. Due to the advantages of "Kieler Sushi", no mechanical stabilization was needed, after only 4.5 months sufficient bone for implant placement was gained. After 4 months of implant healing time, re-entry shows implants overgrown with bone. This case demonstrates the possibilities of only plasma stabilized Kieler Sushi augmentation.

Case Summary



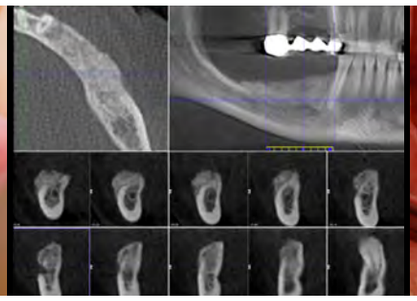
1. Pre-operative CBCT image. Clearly showing the need for vertical augmentation. Complex atrophy in the right mandibular. Both pre-molars need to be removed. Augmentation technique needs to be flexible as the anterior is like ridge preservation and distal almost 5 mm vertical need to be done.

2. Intra-first operative image. Shows the horizontal and vertical augmentation from #44 to #47, a perfect adaption of THE Graft with Kieler Sushi technique is clearly visible (no stabilization with tenting screws or meshes needed).

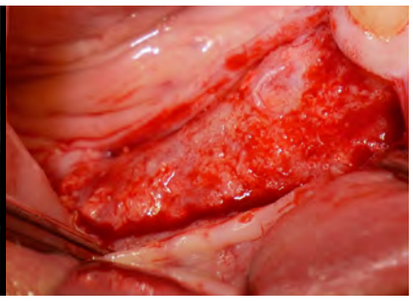


3. Intra-first operative image. Due to the big volume of the augmented site with vertical components a collagen membrane is used, by only glued with fibrin PRF membrane (also no pins used due to “Kieler Sushi”).

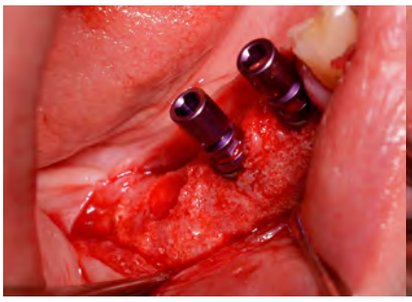
4. Post-first operative image. After 4.5 months, both (vertical and horizontal) augmentation areas are expected good prosthetic results, showing no inflammatory effects. Keratinized gingiva could have been maintained.



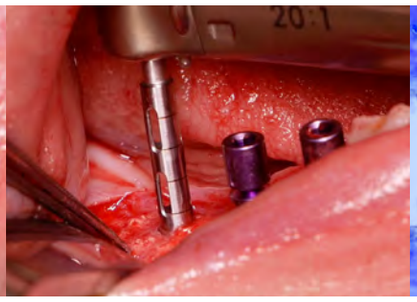
5. Post-first operative image. Clinical results confirmed by CBCT, especially # 46 and #47 showed vertical reconstruction of more than 4-5 mm.



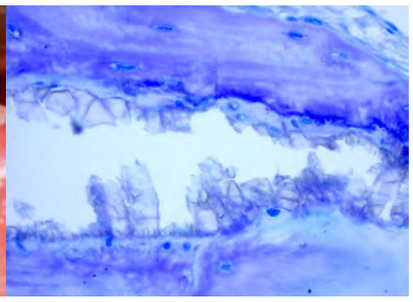
6. Intra-second operative image. Clinical results are satisfying in both, vertical and horizontal. Extreme good remodeling of THE Graft, which can be handled easily via the “Kieler Sushi” technique.



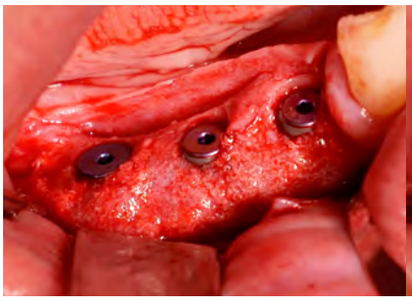
7. Intra-second operative image. Due to sufficient bone, implants with regular dimensions can be placed in the prosthetic preferred position.



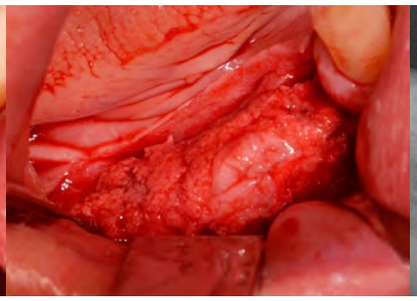
8. Intra-second operative image. Due to sufficient bone, implants with regular dimensions can be placed in the prosthetic preferred position. Biopsy taken to verify the good clinical result.



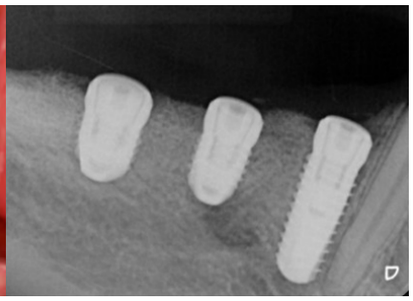
9. Histological analysis (Performed with Prof. Dr. Dr. Smeets, UKE Hamburg). Osteocytes in new bone are visible, basal osteoid can be seen. Full integration of THE Graft is seen.



10. Intra-second operative image. Three implants (cone log, Camlog) in preferred position. Sufficient offer of vital bone is remarkable.

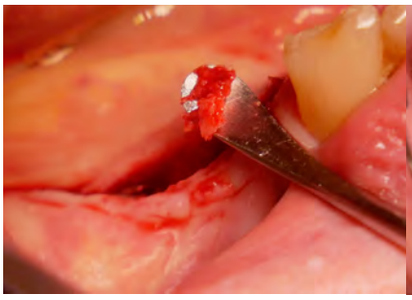


11. Intra-second operative image. Vertical bone was increased by “Kieler Sushi”, realigned and covered with PRF.



12. Post-second operative P.A. image. Full healing of three implants after additional four months.

Case Summary



13. Re-entry. Re-entry was showing the marvelous bone growth of THE Graft with the “Kieler Sushi” technique as the implants needed to be released from overgrowing bone.

14. Re-entry. Gingiva could have moved labially so that soft tissue corrections could have been avoided.

15. Final prosthesis, 8.5 months after bone grafting. Not only bony but also soft tissue regeneration is more than needed so no corrections are needed, and the long-term prognosis is very good.

Restricted front tooth area after traumatic injury and implant approach

Dr. med. dent. Peter Randelzhofer

Implant Competence Centrum Munich, Germany

Case Summary

Nationality	German	Age	Late thirties	Grafting Area	1 | 1 2
Chief Complaint	#11-22 teeth missing.				
Treatment Plan	1. Implants placement (2 stage) at #11, 22. 2. Applied autogenous with PRF around the implants first and sticky bone (THE Graft and PRF) placed. 3. Double layered collagen membrane. 4. 2nd op performed with flapless surgery, but a pouch preparation for soft tissue grafting. 5. Final prosthesis delivered.				

Materials	Category	Products	Method	Description of the method
	Bone graft	THE Graft, autogenous bone	Layering, Sticky bone (THE Graft with PRF)	Autogenous bone on implant surface with over augmentation of sticky bone.
	Membrane	Ossixplus	Double layering	
	Suture	Glycolon		

Methods	Category	Indication	Approach	Surgical Procedures
	■ Implantology	☐ Extraction sockets	☐ Alveolar ridge preservation	☐ One-stage
	☐ Periodontology	☐ Dehiscence	☐ Intra-socket	■ Two-stage
		☐ Fenestration	■ Bone augmentation	■ Immediate placement/Immediate loading
		■ Horizontal bone loss	☐ Ridge Split	■ Simultaneous approach
		■ Vertical bone loss	☐ Lateral	☐ Staged/Delayed approach
		☐ Sinus pneumatization	☐ Crestal	
		☐ Furcation		
		☐ Peri-implantitis		

Before

6 months after extraction at #11-22.
Vertical bone loss observed.

After

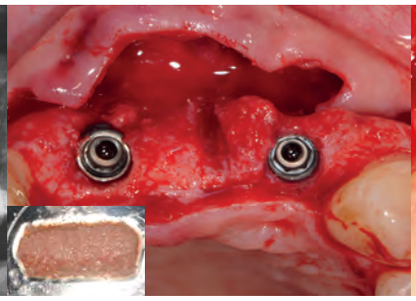
Final zirconia bridge on 2 individual CAD CAM abutments.
With an acceptable functional as an esthetic outcome.

Conclusion

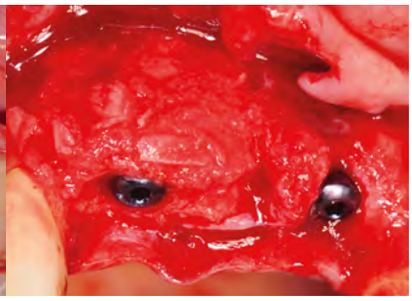
Simultaneous augmentation and implantation with THE Graft in combination with autologous bone and PRF can provide predictable results in horizontal as vertical bone formation.

Case Summary

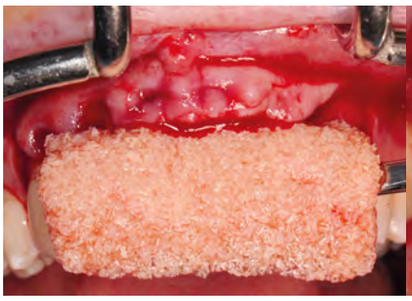
1. Pre-operation. Radiographically observed vertical bone loss after extraction at #11-22.



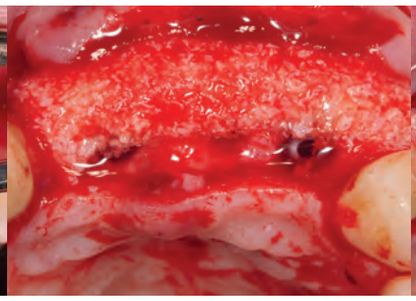
2. Intra-first operation. Implants placed at #11 and #22 (Megagen Anyridge) a bridge reconstruction. And sticky bone was prepared (THE Graft with PRF).



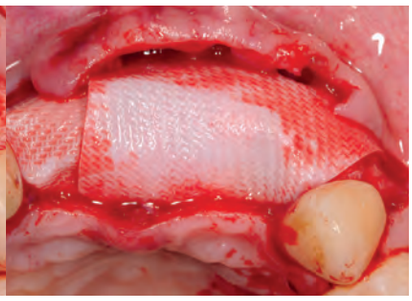
3. Infra-first operation. Autologous bone with PRF to cover the sensible structures at the implant surface.



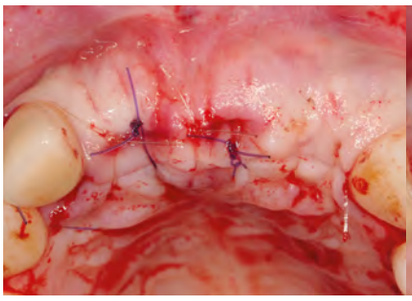
4. Intra-first operation. Big shield of sticky bone of THE Graft with PRF applied.



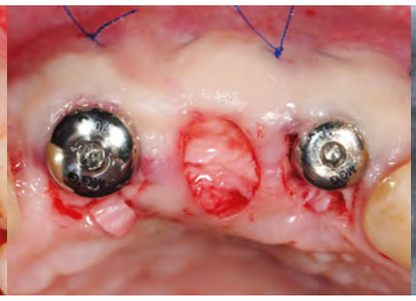
5. Intra-first operation. Augmentation in place, stabilized due to PRF.



6. Intra-first operation. Complete coverage of the augmented area with a collagen membrane in double layer technique.

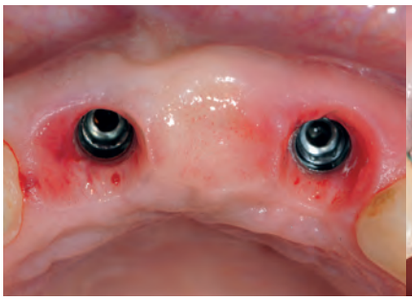


7. Intra-first operation. Tension free closure with anchor sutures to adapt the salt thickness flap.



8. Intra-second operation, 4 months after 1st op and GBR. 2nd stage surgery with punch BGT soft tissue augmentation through a pouch preparation at the implants and the pontic area.

9. Post-second operation. Radiographically observed bone increased vertically.



10. Final restorations. Soft tissue preparation and individualization by the help of a temporary implant bridge.

11. Final restorations. Impression taking of the final situation with individualized impression posts, imitating the emergence profile generated by the temporary.

12. Final prosthesis, 1 year after Implant restoration. Observed good healing quality around the implants.

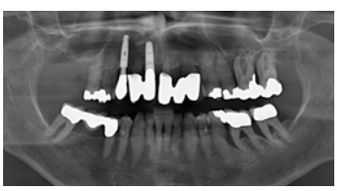
Ridge augmentation with THE Graft in combination with simultaneous implant placement and immediate temporization

Dr. Marcus Engelschalk

Slow Digital Dentistry, Dental Clinic, Munich, Germany

Case Summary

Nationality	German			Grafting Area: 5 - 1 | 1 - 5
Chief Complaint	Multiple tooth lost caused by severe periodontitis and wrong dental treatment in the past as well as wrong implant placements.			
Treatment Plan	1. Extraction and bone augmentation / augmentation of the ridge with immediate implant placement and immediate temporization in the upper jaw. 2. Explantation and additional implantation after healed bone augmentation in the upper jaw. 3. Prosthetic reconstruction of the upper jaw.			
Materials	**Category**	**Products**	**Method**	**Description of the method**
	Bone graft	THE Graft	In combination with PRGF (#11-15) and with Hyaluronic acid (#21-25)	THE Graft was mixed with PRGF according to the Bti protocol for #15-11 as well as with Hyaluronic acid for #21-25 to create a sticky bone graft and to improve the handling and the healing potential of the graft.
	Membrane	SmartBrane	In combination with a PRGF membrane	Resorbable membranes were used to cover the augmentation material and were covered themselves by a layer on PRGF membranes to improve the soft tissue healing.
	Suture	Prolene 4.0, Ethicon	Horizontal mattress suture	A tension free flap was created and sutured by fully covering the augmentation areas and adapted to the temporary abutments.
Methods	**Category**	**Indication**	**Approach**	**Surgical Procedures**
	■ Implantology ☐ Periodontology	■ Extraction sockets ☐ Dehiscence ☐ Fenestration ■ Horizontal bone loss ■ Vertical bone loss ☐ Sinus pneumatization ☐ Furcation ☐ Peri-implantitis	■ Alveolar ridge preservation ■ Intra-socket ■ Bone augmentation ■ Ridge Split ☐ Lateral ☐ Crestal	■ One-stage (#15-14 and #24-25) ■ Two-stage (#13-23) ■ Immediate placement/Immediate loading ☐ Simultaneous approach ☐ Staged/Delayed approach ■ Digital Guide Surgery



Before

#14, 15 as well as #21, #23-27 with severe periodontitis and clinical mobility grade II and wrong positioned implant #11.

After

All-on-5 implants based prosthetic reconstruction of the upper jaw with new implant #11 and ridge augmentation (+ 1 year follow up).

Conclusion

The difficulty of immediate implant placement and simultaneous bone augmentation for extraction sockets and ridge augmentation was performed in a split-mouth approach with PRGF and Hyaluronic acid in combination with THE Graft. The adaption was perfect after creating sticky bone portions. The bone healing was in the planned dimension with a high-quality of newly formatted bone structure for placing an additional implant and to support the placed implants at the time of augmentation.

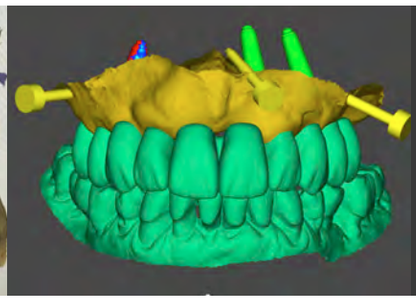
Case Summary

1. Pre-operation. Initial situation of the patient at the time of diagnosis; frontal view.

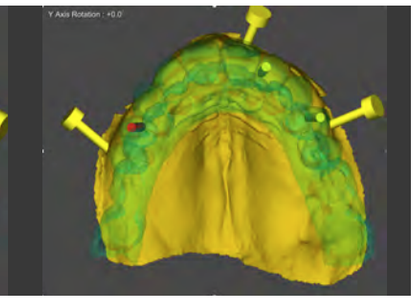
2. Pre-operation. Initial situation of the patient at the time of diagnostic; occlusal view.

3. Intra-operation. Situation after the removal of prosthetic #11-13 and the extraction of tooth #12.

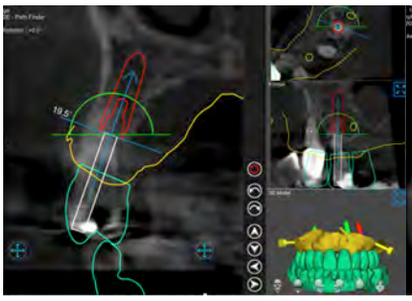
4. Simulation. Initial situation of the patient at the time of diagnostic; intraoral scan.



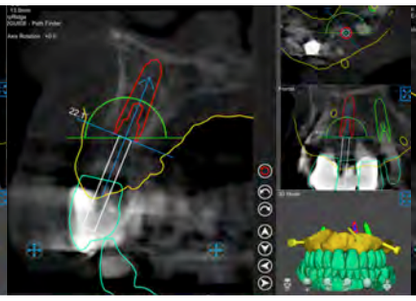
5. Simulation. Digital wax-up of the temporary based on the implant planning with R2Gate software.



6. Simulation. Digital wax-up of the temporary based on the implant planning with R2Gate software.

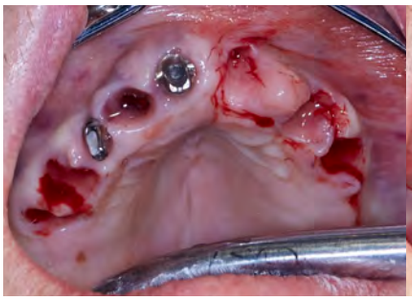


7. Simulation. Implant position planning for immediate implant placement at #25.



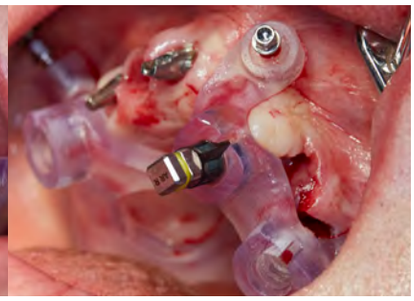
8. Simulation. Implant position planning for immediate implant placement at #22.

9. Simulation. Implant position planning for immediate implant placement at #14.



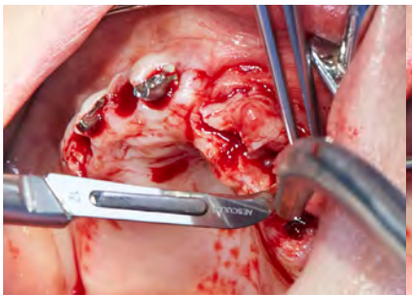
10. Intra-operation. Situation after extraction of all teeth in the upper jaw.

11. Intra-operation. Surgical guide in situ, fixated with osteosynthesis screws for stable positioning.

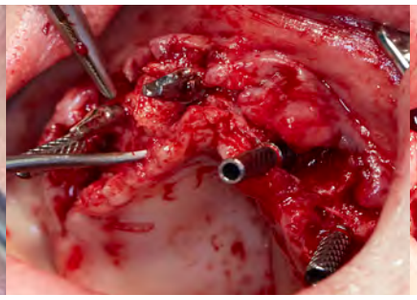


12. Intra-operation. Inserting an implant through the guide as a fully guided workflow at #22 after drilling.

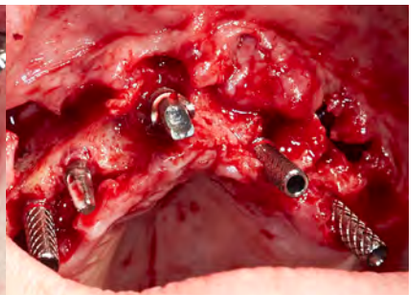
Case Summary



13. Intra-operation. Creating the flap after implant placement to get access for bone augmentation.



14. Intra-operation. Picturing the alveolar crest and the bone situation as well as cleaning the bone from granulate tissue.

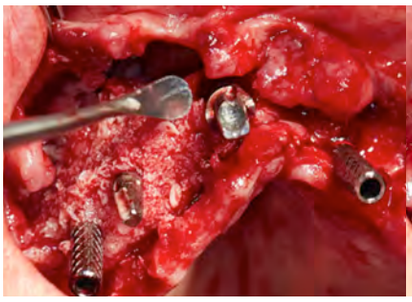


15. Intra-operation. Situation of the upper jaw before bone augmentation.

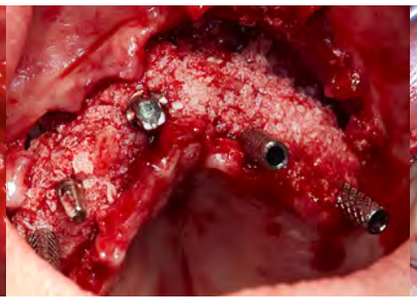
16. Intra-operation. Production process of the PRGF following the protocol of Prof. Anitua.

17. Intra-operation. Creating sticky bone with activated PRGF and THE Graft.

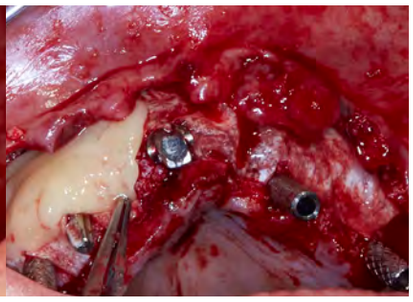
18. Intra-operation. Creating sticky bone with Hyaluronic acid and THE Graft.



19. Intra-operation. Bone augmentation with PRGF and THE Graft in the first quadrant.



20. Intra-operation. Bone augmentation in place in the upper jaw at #15-25.



21. Intra-operation. Applied of the PRGF membrane on the already placed resorbable membranes (SmartBrane).

22. Post-operation. Panorama view. Post operative control x-ray after extractions, implant placement, and bone augmentation.

23. Final prosthesis, 1 year after surgery. Panorama view. Definitive screws retained prosthetic reconstruction.

24. Follow-up, 2 years after surgery. Final prosthesis upper jaw, full arch monolithic zirconia implant bridge. Smile line.

Vertical and horizontal maxillary bone augmentation on mandibular atrophy

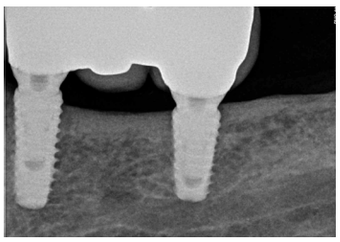
Dr. Pablo Bustillo
Spain

Case Summary

Nationality	Spanish			Grafting Area	
Chief Complaint	The patient with vertical bilateral mandibular atrophy due to prolonged dental loss and the use of removable partial prostheses that caused a vertical bone defect and dental destruction in those parts that supported the prosthesis.				
Treatment Plan	1. 3 months was expected for the maturation of soft and hard tissue. 2. Applied mixed THE Graft and autogenous (5:5) and covered with OpenTex-TR. 3. 6 months after GBR, removed OpenTex-TR, biopsy, and implants placement.				
Materials	**Category**	**Products**	**Method**	**Description of the method**	
	Bone graft	THE Graft, autogenous	Mixed (5:5)	Mixed autologous bone harvested from the left and right oblique line as well as the chin (50%) and small particle size, THE Graft (50%).	
	Membrane	OpenTex-TR	Fixation with screws	Using reinforced PTFE membrane (30X40) for vertical ridge augmentation.	
Methods	**Category**	**Indication**	**Approach**	**Implant technique**	
	■ Implantology ☐ Periodontology	☐ Extraction sockets ☐ Dehiscence ☐ Fenestration ■ Horizontal bone loss ■ Vertical bone loss ☐ Sinus pneumatization ☐ Furcation ☐ Peri-implantitis	☐ Alveolar ridge preservation ☐ Intra-socket ■ Bone augmentation ☐ Ridge Split ☐ Lateral ☐ Crestal	☐ One-stage ■ Two-stage ☐ Immediate placement/Immediate loading ☐ Simultaneous approach ■ Staged/Delayed approach	

Before

Observed bone loss.



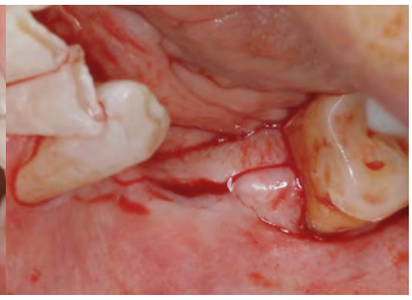
After

The final prosthesis was delivered. Radiographically observed implants stable without marginal bone loss.

Case Summary

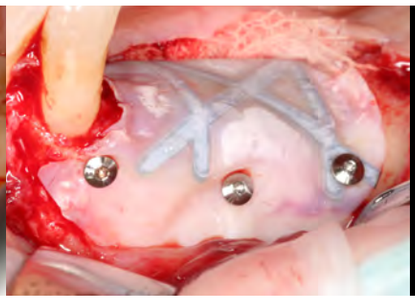
1. Pre-operative CBCT image. RX control pre-op.

2. Pre-operative image. Edentulous with left mandibular atrophy.

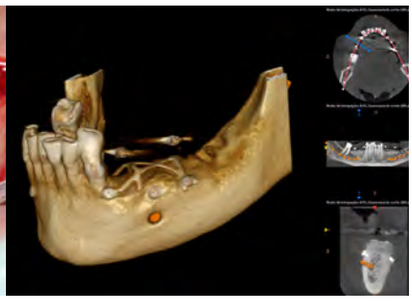


3. Intra-first operative image. Incision.

4. Intra-first operative image. GBR using PTFE reinforced membrane (OpenTex-TR) and mixed THE Graft and autogenous bone graft (50:50%).

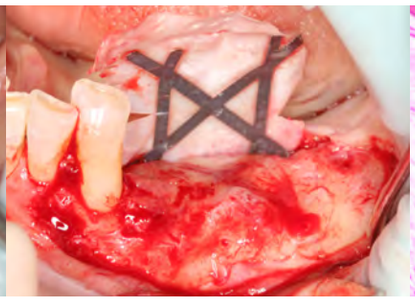


5. Intra-first operative image. Fixation OpenTex-TR with pins.

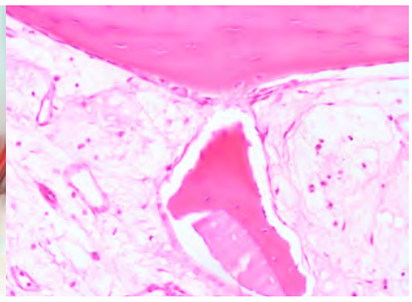


6. Post-first operative image, 6 days after GBR.

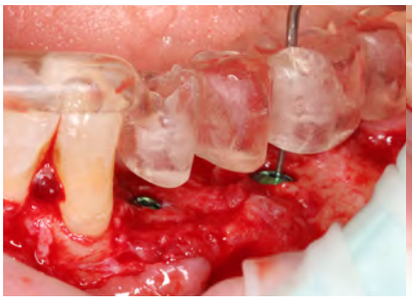
7. Post-first operative image, 6 months after GBR.



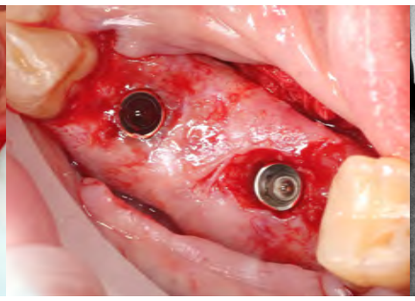
8. Intra-second operative image, 6 months after GBR. Re-open. Clinically observed vascularized new bone formation.



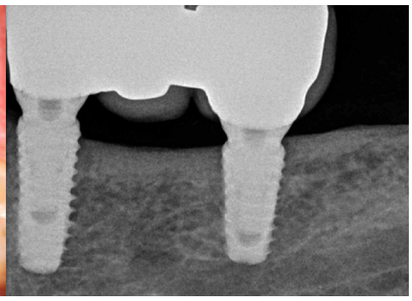
9. Histological analysis, 6 months after GBR (Biopsy area). New bone is surrounded by residual bone.



10. Intra-second operative image. Implants were placed using temporary guide stents.



11. Intra-second operative image. Implants were placed.



12. Final prosthesis. Good oral hygiene was maintained.

Vertical and horizontal reconstruction of the upper right posterior maxilla using allograft cortical struts

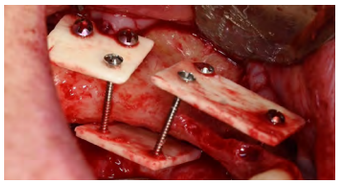
Dr. Stavros Eleftheriou
UK

Case Summary

Nationality	UK	Age	Early fifties	Grafting Area	6 5 4 3
Chief Complaint	Patient would like to restore the chewing function in the right side, with good aesthetic results.				
Treatment Plan	1. Regenerate the bone and allow 4 months of healing. 2. Place 3 implants and wait for 3 months for osseointegration. 3. Expose the implants + soft tissue surgery (if needed). 4. Patient referred to the restorative dentist.				

	Category	Products	Method	Description of the method
Materials	Bone graft	THE Graft, allograft	Two type bone graft mixed with PRF for sticky bone	The allograft cortical struts used to create the space with screws. THE Graft was mixed with allograft (50-50) and S-PRF & A-PRF were used to prepare sticky bone.
	Membrane	PRF membrane		A-PRF membranes were layered over the grafted area.

	Category	Indication	Approach	Implant technique
Methods	■ Implantology ☐ Periodontology	☐ Extraction sockets ☐ Dehiscence ☐ Fenestration ■ Horizontal bone loss ■ Vertical bone loss ☐ Sinus pneumatization ☐ Furcation ☐ Peri-implantitis	☐ Alveolar ridge preservation ☐ Intra-socket ■ Bone augmentation ☐ Ridge Split ☐ Lateral ☐ Crestal	☐ One-stage ■ Two-stage ☐ Immediate placement/Immediate loading ☐ Simultaneous approach ■ Staged/Delayed approach



Before

Allograft cortical struts secured with screws to create the space for the particulate bone grafting material (sticky bone).

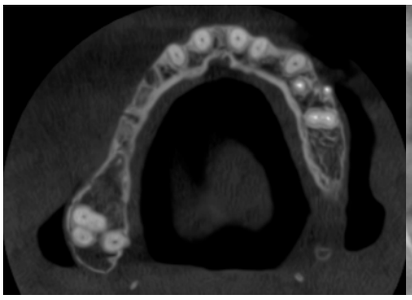
After

Post Bone Regeneration surgery and post FGG (Free Gingival Graft) surgery. Picture taken prior to referral to the restorative Dentist.

Conclusion

The outcome of the bone grafting procedure was satisfactory in terms of the amount of bone achieved and the positioning of the implants was good. The soft tissue achieved offers good aesthetics but also longevity and stability for the grafted hard tissue. Therefore, THE Graft is a great biomaterial that I use on a regular basis on its own in many cases or in combination with allografts (and always using PRF) for large reconstructions.

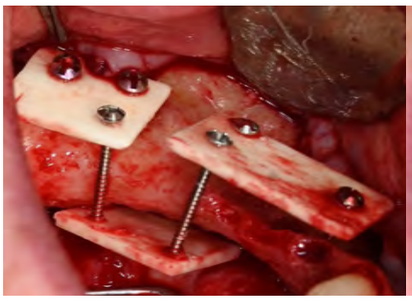
Case Summary



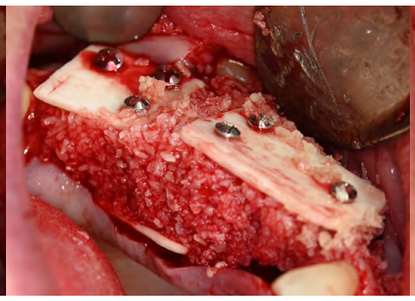
1. Pre-operative CBCT scan. It shows the narrow alveolar ridge.

2. Pre-operative panoramic radiography. It shows the vertical deficiency.

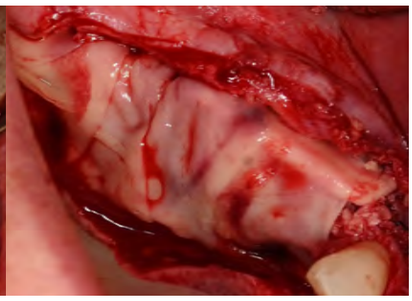
3. Pre-operative image. Vertical and horizontal deficiency.



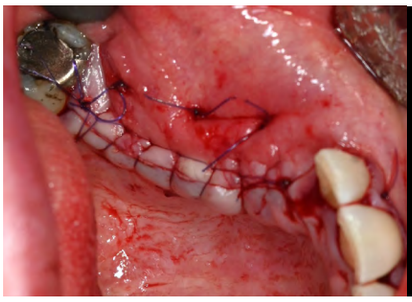
4. Intra-operative image (bone regeneration). Allograft cortical struts secured with screws to create the space for the graft to heal protecting it from the pressure from the soft tissue and from any muscular movement.



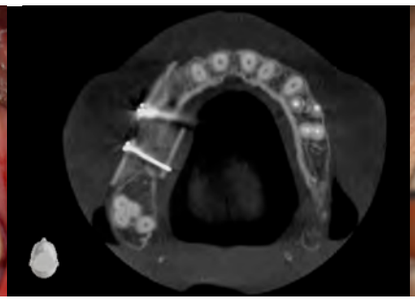
5. Intra-operative image (bone regeneration). THE Graft is mixed with allograft (50:50) and combined with sticky bone, which is then packed in place.



6. Intra-operative image (bone regeneration). A-PRF membranes layered over the grafted area.

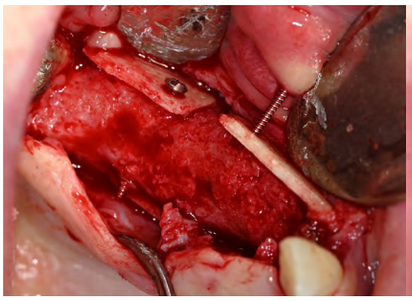


7. Intra-operative image (bone regeneration). Passive closure achieved using 2 layers of sutures.

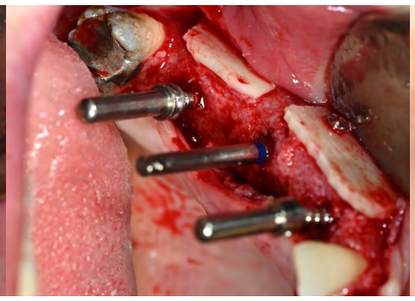


8. Post-bone regenerative CBCT radiography. About 4 months after the initial surgery.

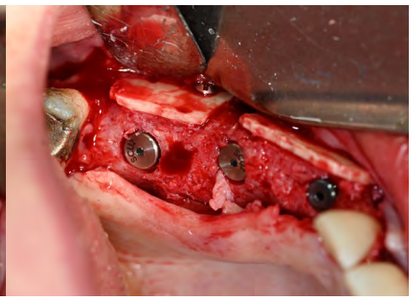
9. Pre-operative image, 4 months after grafting and prior to implant placement.



10. Intra-operative image (implant placement). Exposure of the grafted area - some screws have been removed. There is good amount of bone regeneration for implant placement. Incision and flap elevation and removed some screws. Bone grafting procedure was satisfactory in terms of the amount of bone achieved for implants placement.



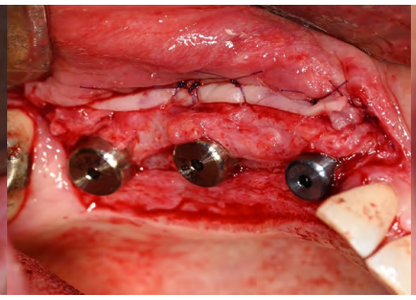
11. Intra-operative image (implant placement). Drilling according to the implants system - parallel pins in place.



12. Intra-operative image (implant placement). Implants placed (2 stage) - cover screws in place (Southern Implants External Hex Msc).

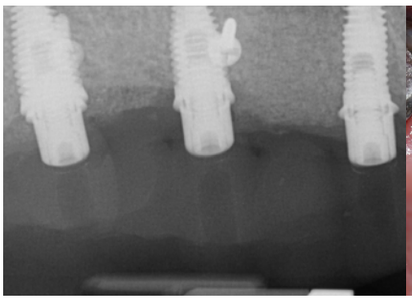
Case Summary

13. **Pre-operative image (implant exposure), 7 months after bone grafting.** Soft tissue appearance 3 months post implants placement.



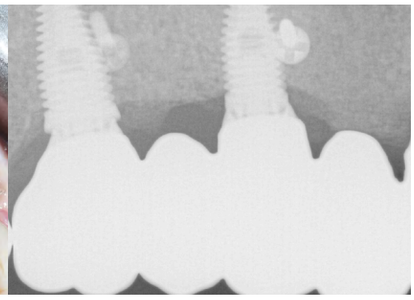
14. **Intra-operative image (implant exposure), 7 months after bone grafting.** Split thickness apically repositioned flap in order to achieve some keratinized attached gingiva buccally. Implants exposed - cover screws replaced with healing abutments (2nd op).

15. **Post-operative image, 10 days after exposure and soft tissue surgery.**

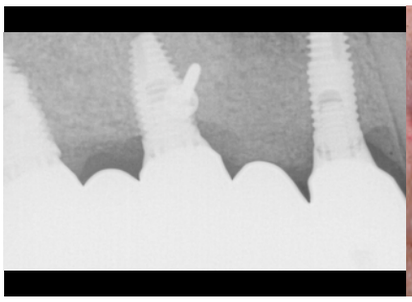


16. **Post-operative peri-apical radiography.**

17. **Post-operative image, 4 weeks after exposure and soft tissue surgery.**



18. **Final prosthesis peri-apical radiography.**



19. **Final prosthesis peri-apical radiography.**

20. **Final prosthesis image.**

The use of porcine xenograft mixed with allograft in combination with the Fast System for the reconstruction of a posterior mandibular horizontal and vertical defect

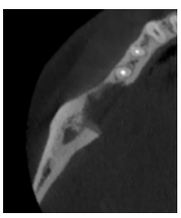
Dr. Stavros Eleftheriou
UK

Case Summary

Nationality	UK	Age	Mid-forties	Grafting Area	7 6
Chief Complaint	The patient had two failed implants in the right posterior mandible and ended up in a large horizontal and vertical defect. Patient wanted to restore function with implants.				
Treatment Plan	1. Create the necessary space for the graft to heal using a titanium plate with screws (Fast System by Dr. Choukroun). Graft using THE Graft and allograft (50:50) and combine with S-PRF & A-PRF for sticky bone. 2. Wait for 4 months. 3. Removal of the titanium plate and screws and implant placement (1st op). 4. Patients was referred to the restorative dentist.				

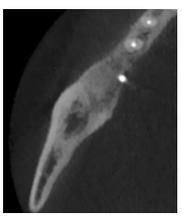
	Category	Products	Method	Description of the method
Materials	Bone graft	THE Graft, allograft	Two type bone graft mixed with PRF for sticky bone	THE Graft and allograft were mixed with PRF and “Sticky Bone” was prepared, as per Dr. Joseph Choukroun’s protocols. Titanium plate with 2 screws was fixed.
	Membrane	PRF membrane		A-PRF membranes were layered over the grafted area.

	Category	Indication	Approach	Implant technique
Methods	■ Implantology ☐ Periodontology	☐ Extraction sockets ☐ Dehiscence ☐ Fenestration ■ Horizontal bone loss ■ Vertical bone loss ☐ Sinus pneumatization ☐ Furcation ☐ Peri-implantitis	☐ Alveolar ridge preservation ☐ Intra-socket ■ Bone augmentation ☐ Ridge Split ☐ Lateral ☐ Crestal	☐ One-stage ■ Two-stage ☐ Immediate placement/Immediate loading ☐ Simultaneous approach ■ Staged/Delayed approach



Before

Bony defect following the loss of 2 implants.



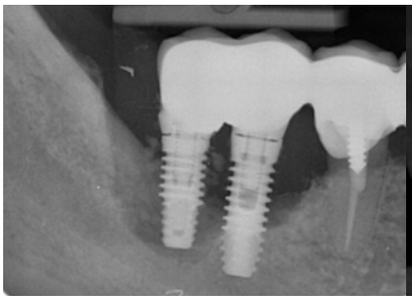
After

4 months after bone grafting. The amount of regenerated bone is sufficient for implant placement.

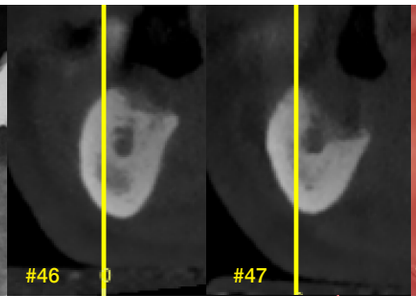
Conclusion

The area appears to have healed well on the CBCT scan. Satisfactory bone formation and restoration of the anatomy of the mandible is observed. The inferior alveolar canal is restored, which was compromised due to the bone loss. No graft particles could be seen macroscopically as is the case with many other xenografts.
In my experience, Purgo “THE Graft” on its own, or in combination with allografts (for complex defects) and mixed with PRF is a great biomaterial.

Case Summary

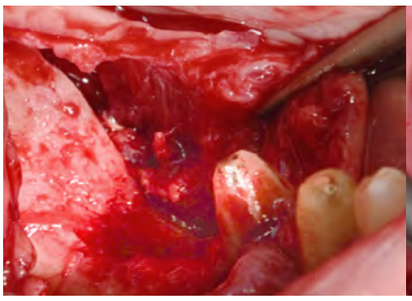


1. Pre-operative periapical radiography. Severe bone loss around the failing implants is observed.



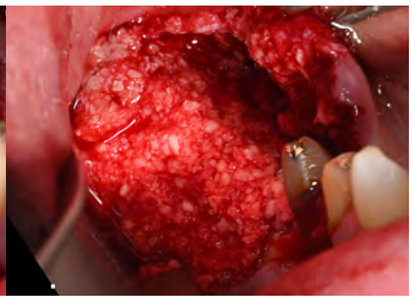
2. Post failed implant removal. CBCT radiography showing the severe vertical bone loss.

3. Pre-operative image. Vertical and horizontal bone loss of the posterior mandible right area.

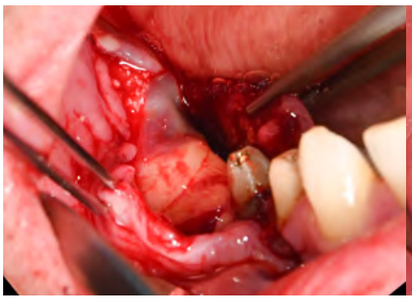


4. Intra-operative image (bone regeneration). Incision and flap release is performed both buccally and lingually.

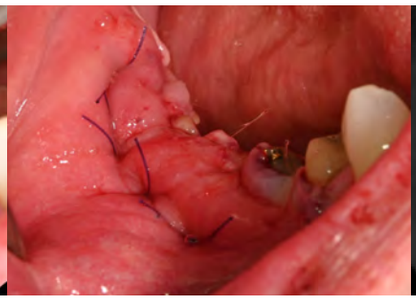
5. Intra-operative image (bone regeneration). A titanium plate with 2 screws is fixated in the area to allow for the tenting of the soft tissue (Choukroun's Fast system).



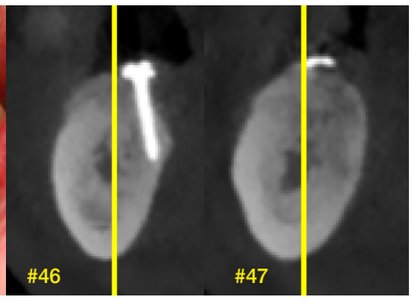
6. Intra-operative image (bone regeneration). The defect is grafted using the "Sticky Bone" (THE Graft and allograft were mixed (50:50) with PRF).



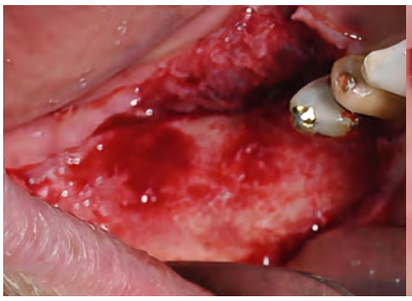
7. Intra-operative image (bone regeneration). PRF membranes are layered over the titanium plate/grafted area.



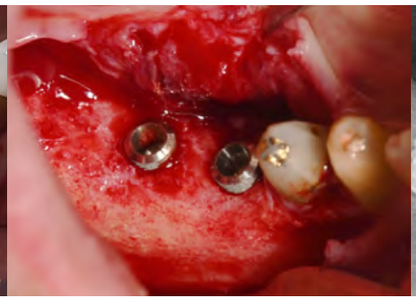
8. Intra-operative image (bone regeneration). The wound is sutured using 2 layers of sutures: 1. horizontal mattress sutures deep into the vestibulum to eliminate the tension on the flap edges, 2. Continuous interlocking suture for the flap closure.



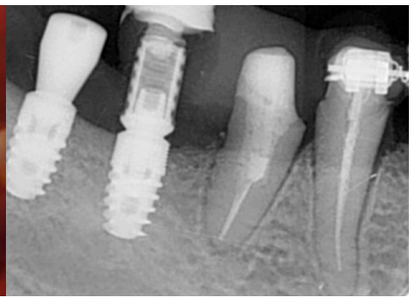
9. Post-bone regeneration procedure, 4 months after grafting. CBCT radiography showing substantial vertical and horizontal bone gains.



10. Intra-operative image, 4 months after grafting (implant placement). The titanium plate and screws are removed. Satisfactory bone formation is observed, and the anatomy of the mandible is restored.



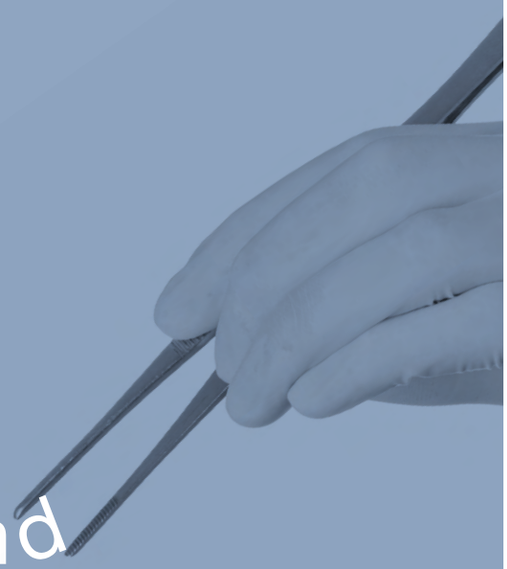
11. Intra-operative image (implant placement). Implants inserted - just before seating them in place.



12. Post-operation periapical radiography.

03

Sinus pneumatization and vertical bone defect



Bi-Lateral sinus lift and horizontal bone augmentation with simultaneous implant placement

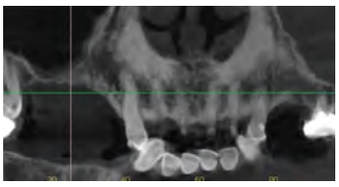
Dr. Jérôme Surmenian
France

Case Summary

Nationality	French	Age	Early fifties	Grafting Area	6 5 4 | 4 5 6
Chief Complaint	The patient had a severe bone loss around the endodontic tooth.				
Treatment Plan	1. Lateral wall sinus lift and simultaneous implant placement at #14-#15-#16 (2 stage). 2. Sticky bone (THE Graft with PRF) applied covered BioCover collagen membrane at #14-#15-#16. 3. Lateral wall sinus lift and simultaneous implant placement at #24-#25-#26 (2 stage). 4. Sticky bone (THE Graft with PRF) applied at #24-#25-#26. 5. 3.5 months after healing, re-open for 2nd stage performed at #14-#15-#16, #24-#25-#26.				

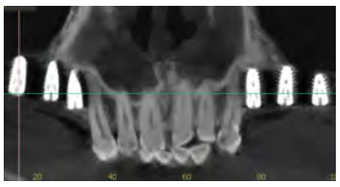
	Category	Products	Method	Description of the method
Materials	Bone graft	THE Graft	Sticky bone	Mixed THE Graft with PRF for making a sticky bone.
	Membrane	BioCover at #14-#15-#16		Compared with/without collagen membrane used.
	Suture	Resorbable sutures		

	Category	Indication	Approach	Surgical Procedures
Methods	■ Implantology	☐ Extraction sockets	☐ Alveolar ridge preservation	☐ One-stage
	☐ Periodontology	☐ Dehiscence	☐ Intra-socket	■ Two-stage
		☐ Fenestration	■ Bone augmentation	☐ Immediate placement/Immediate loading
		■ Horizontal bone loss	☐ Ridge Split	■ Simultaneous approach
		■ Vertical bone loss	☐ Lateral	■ Staged/Delayed approach
		■ Sinus pneumatization	☐ Crestal	
		☐ Furcation		
		☐ Peri-implantitis		



Before

CBCT shows severe bone loss.



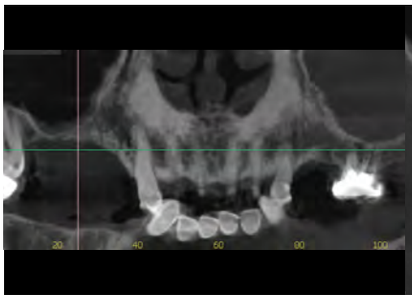
After

Alveolar ridge augmented for implants placed stability.

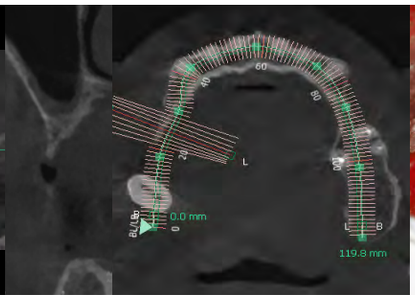
Conclusion

There was no difference in using or not a collagen membrane. Both sites were not initially in an inflammatory situation.
In not inflammatory situation, a collagen membrane may not be needed.

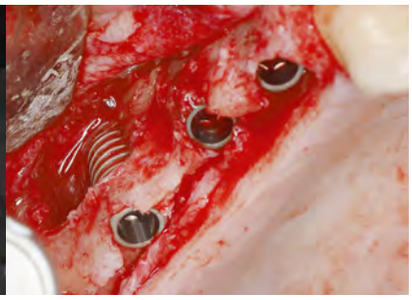
Case Summary



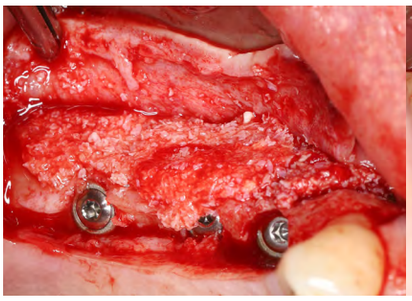
1. Pre-operative CBCT image. It shows severe bone loss.



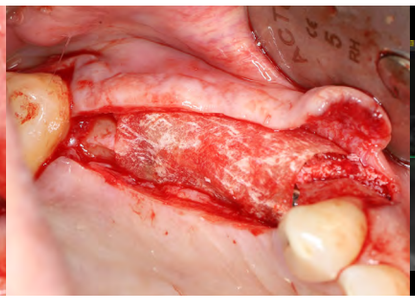
2. Pre-operative CBCT image. It shows severe bone loss.



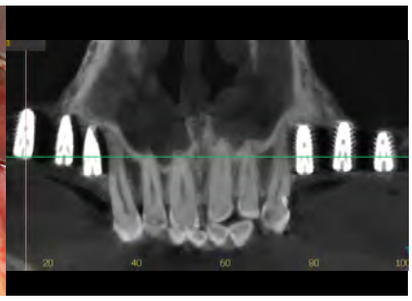
3. Intra-first operative image. Lateral wall sinus lift and simultaneous implant placement at #14-#15-#16, #24-#25-#26 (2 stage).



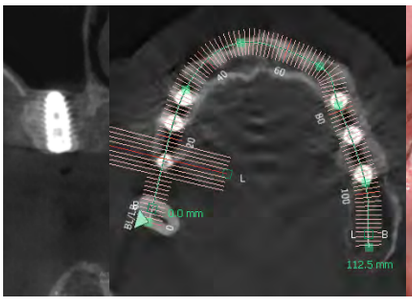
4. Intra-first operative image. Sticky bone (THE Graft with PRF) was applied at #14-#15-#16, #24-#25-#26.



5. Intra-first operative image. Covered with BioCover membrane at #14-#15-#16 (No membrane used at #24-#25-#26).

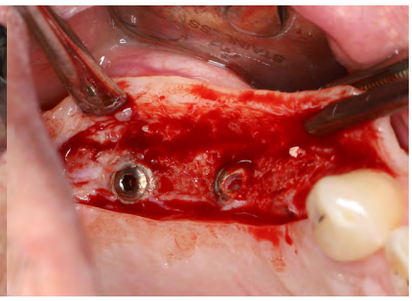


6. Post-first operative CBCT image, the day after implants placement and bone grafting.

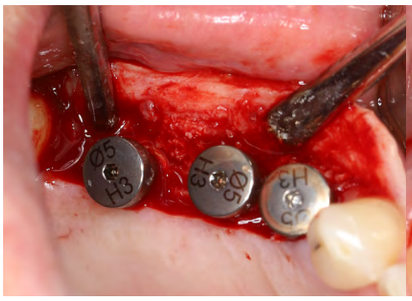


7. Post-first operative CBCT image, the day after implants placement and bone grafting.

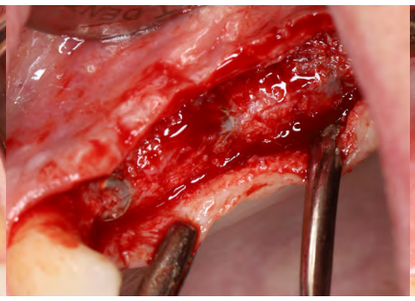
8. Post-first operative image, 3.5 months after implants placement and bone grafting.



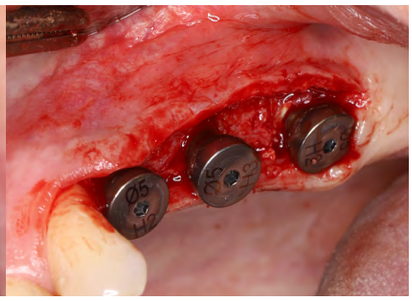
9. Intra-second operative image, 3.5 months after implants placement and bone grafting. Incision and flap elevation at #14-#15-#16 shows the reconstructive ridge and osteo-integrated implant.



10. Intra-second operative image. Healing abutment in place.



11. Intra-second operative image. Incision and flap elevation at #24-#25-#26. There was also observed sufficient bone increased well.



12. Intra-second operative image. #24-#25-#26 healing screws in place.

Vertical and horizontal maxillary bone augmentation on edentulous patient

Dr. Pablo Bustillo
Spain

Case Summary

Nationality	Spanish			Grafting Area	
Chief Complaint	The patient presenting vertical and horizontal maxillary atrophy after loss of 6 dental implants.				
Treatment Plan	1. Removed 6 failed implants. 2. After 3 months healing period, a sinus lift was performed, and GBR with mixed autogenous bone and THE Graft (5:5) and fixed OpenTex-TR. 3. After 7 months GBR, implants were placed, and a biopsy. 4. Final prosthesis were delivered.				
Materials	**Category**	**Products**	**Method**	**Description of the method**	
	Bone graft	THE Graft, autogenous	Mixed (5:5)	Mixed autologous bone harvested from the left and right oblique line as well as the chin (50%) and small particle size, THE Graft (50%).	
	Membrane	OpenTex-TR	Fixation with screws	Using reinforced PTFE membrane (30X40) for vertical ridge augmentation.	
Methods	**Category**	**Indication**	**Approach**	**Implant technique**	
	■ Implantology ☐ Periodontology	☐ Extraction sockets ■ Sinus pneumatization ■ Vertical bone loss ■ Horizontal bone loss ☐ Fenestration ☐ Furcation ☐ Dehiscence ☐ Periimplantitis	☐ Lateral ☐ Crestal ■ Bone augmentation ☐ Alveolar ridge preservation	☐ Simultaneous extraction with GBR ☐ Simultaneous GBR with implantation ☐ Immediate placement ■ Delayed implant placement ☐ Immediate loading ☐ One-stage ■ Two-stage	

Before

Severe vertical and horizontal bone loss was observed 3 months after failed implant removed.

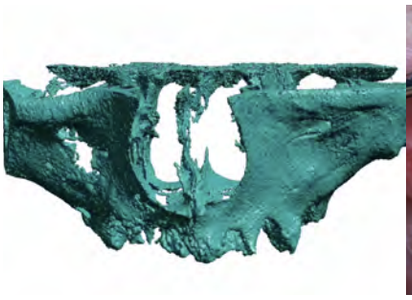
After

7 months after GBR. Clinical findings of newly formed bone-like tissue after removal of the preformed reinforced PTFE membrane.

Conclusion

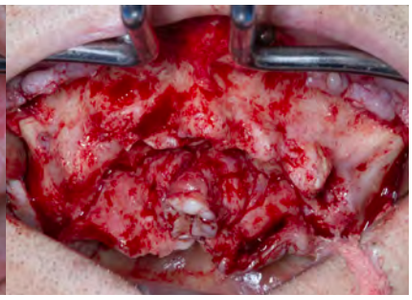
After 3 months removed failed implants, left and right sinus lift were performed due to posterior maxillary atrophy. The maxillary alveolar ridge was reconstructed with the use of OpenTex-TR (30x40) membranes in both quadrants to achieve a homogeneous volume of the entire maxilla. Under the non-resorbable membranes, we obtained autologous bone from the left and right oblique line as well as the chin, to then be particulate and mixed with THE Graft particles (0.25-1.0mm). Everything was stabilized by using thumbtacks and screws. After 7 months, the opening and placement of dental implants were carried out.
The augmented bone around implants was well maintained, both horizontally and vertically after delivered final prosthesis.

Case Summary

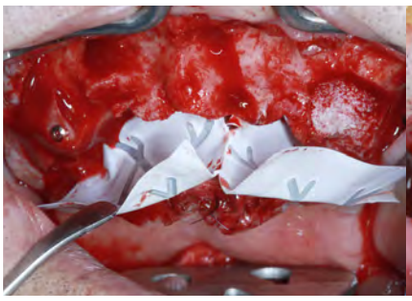


1. Pre-operative image. RX control pre-op.

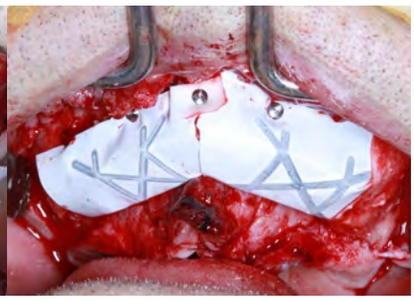
2. Pre-operative image. Edentulous patient with maxillary atrophy after losing dental implants.



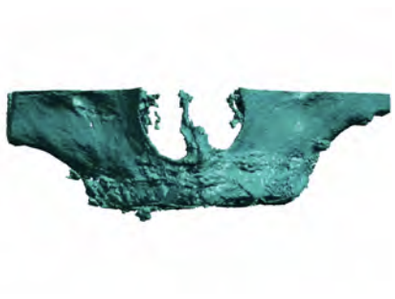
3. Intra-first operative image. Incision and flap reflection. Maxillary atrophy horizontal and vertical.



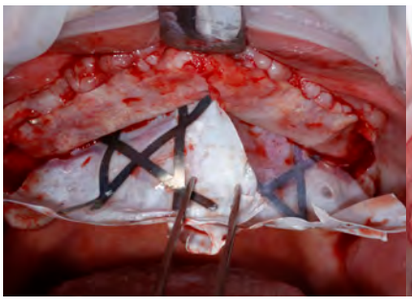
4. Intra-first operative image. Sinus elevation maxillary bilateral and fixated OpenTex-TR with screws.



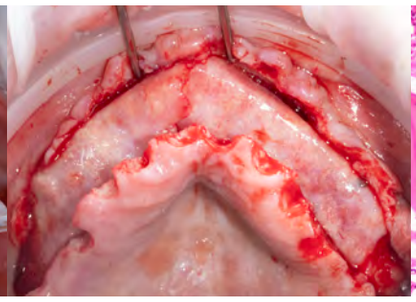
5. Intra-first operative image. Applied mixed autologous bone harvested from the left and right oblique line as well as the chin (50%) and small particle size, THE Graft (50%).



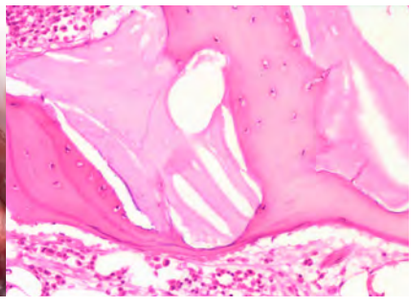
6. Post-first operative image, 7 months after GBR. The ridge had enough height and width to place implants. The ridge was horizontally and vertically augmented.



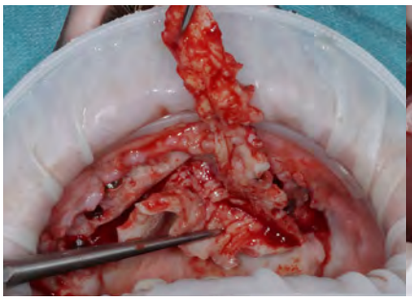
7. Intra-second operative image, 7 months after GBR. Incision and flap elevation for removal of OpenTex-TR and implant placement.



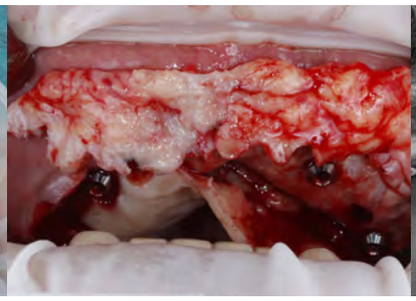
8. Intra-second operative image, Removed OpenTex-TR. Good healing state of newly formed bone-like tissue was observed.



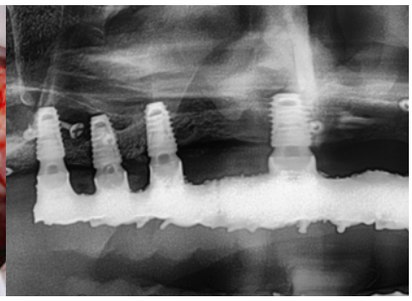
9. Histological analysis, 7 months after GBR (Biopsy area). New bone is surrounded by residual bone. New vital bone 59.10%, residual bone 20.40%, and connective tissue 20.50%.



10. Intra-second operative image. Implants were placed and harvested connective tissue, creating anatomy scalloped for future placement in vestibular implants.



11. Intra-second operative image. Soft tissue management was performed with harvested connective tissue on the labial bone for verification of implant coverage.



12. Final prosthesis. Good oral hygiene was maintained.

04

Dehiscence and vertical bone defect

Peri-implantitis therapy

Dr. Torsten Conrad M.Sc.

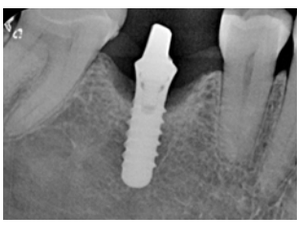
Zentrum für innovative Zahnheilkunde, Bingen, Germany

Case Summary

Nationality	German	Age	Early sixties	Grafting Area	
Chief Complaint	Patient visited with a pain around the mandibular right area.				
Treatment Plan	1. Preoperative IV. antibiosis, control of vitamin D status. 2. Preparation of a liquid and solid PRF matrix. 3. Open curettage, decontamination of the surfaces. 4. Augmentation of the peri-implant defect. 5. Approximation of the wound margins (Guided Open Wound Healing). 6. 9 months after bone grafting, final prosthesis delivered.				

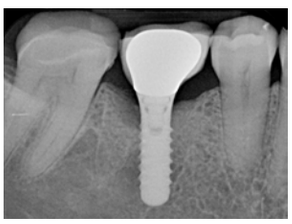
Materials	Category	Products	Method	Description of the method
	Bone graft	THE Graft Collagen	Soaking into the PRF liquid	Collagenated bone graft material was with a LSCC-PRF low liquid matrix and trimmed.
	Membrane	PRF membrane		Covered with a LSCC-PRF high membrane-matrix.
	Suture	PTFE 4.0	Guided open wound healing technique	Approximation of the wound margins.
	Others	Helbo-Laser	Photodynamic Laser therapy	Local decontamination of the tissue and implant surface.

Methods	Category	Indication	Approach	Surgical Procedures
	■ Implantology	☐ Extraction sockets	☐ Alveolar ridge preservation	☐ One-stage
	☐ Periodontology	☐ Dehiscence	☐ Intra-socket	☐ Two-stage
		☐ Fenestration	■ Bone augmentation	☐ Immediate placement/Immediate loading
		☐ Horizontal bone loss	☐ Ridge Split	■ Simultaneous approach
		☐ Vertical bone loss	☐ Lateral	☐ Staged/Delayed approach
		☐ Sinus pneumatization	☐ Crestal	
		☐ Furcation		
		■ Peri-implantitis		



Before

Radiographically observed periimplantitis at the first visiting. Bone fracture around #46i.



After

9 months after bone augmentation.

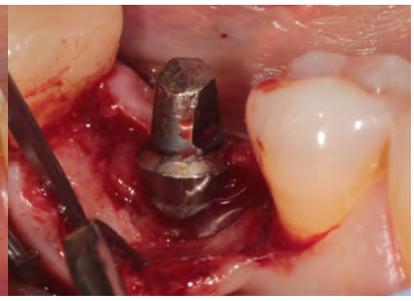
Conclusion

The collagenated bone graft, THE Graft Collagen is very well suited for the augmentation of bony defects in the context of periimplantitis therapy. In combination with PRF, wound closure can be dispensed with.

Case Summary

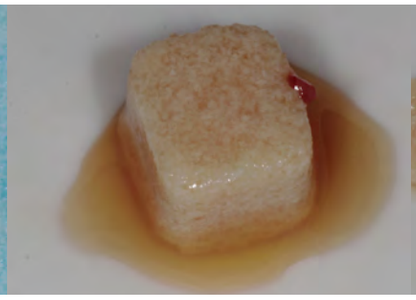
1. Pre-operation. Occlusal view. Peri-implant infection occurred with pus.

2. Pre-operation. Buccal view.



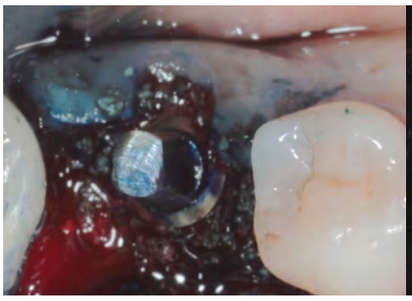
3. Intra-operation. Incision and flap elevation. And condition after curettage.

4. Intra-operation. Removed granulation tissue and bone sequestrum.

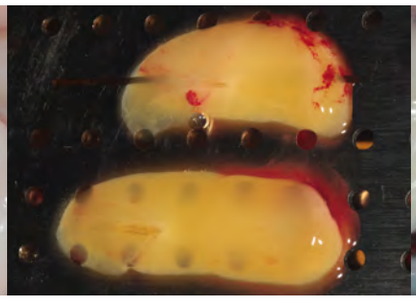


5. Intra-operation. Prepared THE Graft Collagen with a liquid PRF matrix.

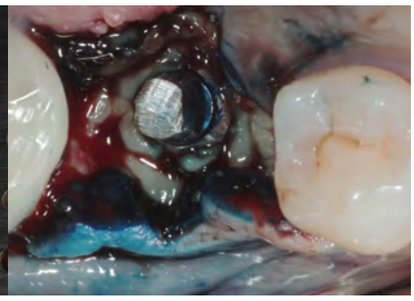
6. Intra-operation. Biologized THE Graft Collagen cut in smaller pieces for augmentation.



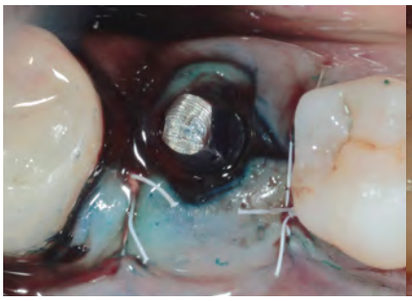
7. Intra-operation. THE Graft Collagen was grafted.



8. Intra-operation. Preparation of the solid PRF matrix.



9. Intra-operation. Bone grafted and crestal coverage with the PRF membrane.



10. Intra-operation. Sutured with wound margins with PTFE suture.

11. Post-operation, 1 week after bone grafting.

12. Final prosthesis, 9 months after bone grafting. Final prosthesis delivered.

Peri-implant augmentation of a horizontal and vertical defect with guided open wound healing


Dr. Torsten Conrad M.Sc.[1], Prof. Dr. Dr. Dr. Shahram Ghanaati[2]

1 Zentrum für innovative Zahnheilkunde, Bingen, Germany
2 Deputy Director of Department for Oral, Cranio-Maxillofacial and Facial Plastic Surgery, Medical Center of the Goethe University Frankfurt, Germany

Case Summary

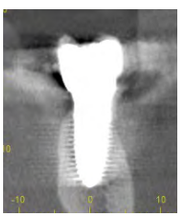
Nationality	German	Age	Mid-sixties	Grafting Area	
Chief Complaint	Horizontal and vertical bone loss.				
Treatment Plan	1. Preoperative antibiosis IV., control of vitamin D status. 2. Preparation of a liquid and solid PRF matrix. 3. Implantation. 4. Augmentation. 5. Approximation of the wound edges (Guided Open Wound Healing). 6. 3 months after implant placement, final prosthesis delivered.				

Materials	Category	Products	Method	Description of the method
	Bone graft	THE Graft Collagen	Soaking into the PRF liquid	Collagenated bone graft material was with a liquid PRF matrix and trimmed.
	Membrane	PRF membrane		Covered with a LSCC-PRF high membrane-matrix.
	Suture	PTFE 4.0	Guided open wound healing technique	Approximation of the wound margins.

Methods	Category	Indication	Approach	Surgical Procedures
	■ Implantology	☐ Extraction sockets	☐ Alveolar ridge preservation	■ One-stage
	☐ Periodontology	☐ Dehiscence	☐ Intra-socket	☐ Two-stage
		☐ Fenestration	■ Bone augmentation	☐ Immediate placement/Immediate loading
		■ Horizontal bone loss	☐ Ridge Split	■ Simultaneous approach
		■ Vertical bone loss	☐ Lateral	■ Staged/Delayed approach
		☐ Sinus pneumatization	☐ Crestal	
		☐ Furcation		
		☐ Peri-implantitis		

Before

Day 0 after bone augmentation.



After

9 months after bone augmentation.

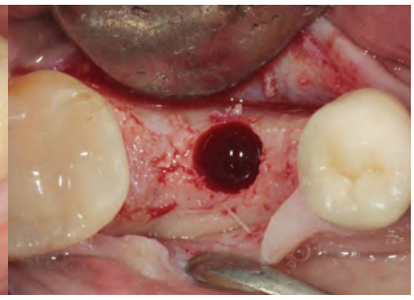
Conclusion

Combination defects of smaller circumference can be implanted and augmented simultaneously with collagenated bone graft material, THE Graft Collagen when PRF is used. By omitting plastic closure and periosteal slitting, the mucogingival border can be preserved.

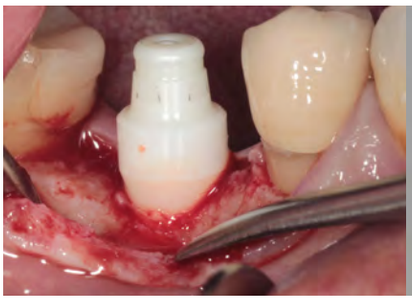
Case Summary

1. Pre-operation. Occlusal view.

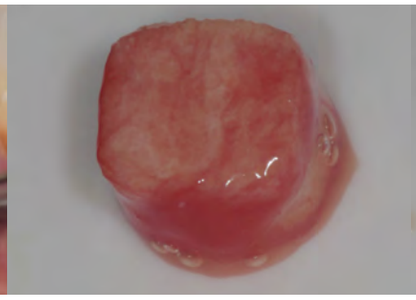
2. Pre-operation. Buccal view.



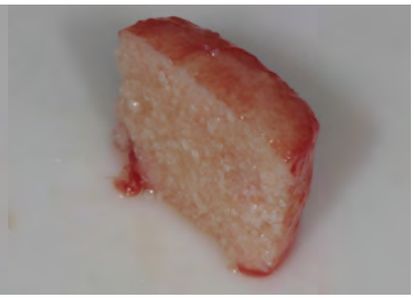
3. Intra-operation. Implant preparation.



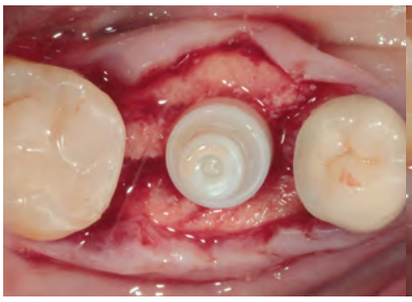
4. Intra-operation. Implant placement (SDS ceramic tissue level Implant, Ø 4.6 X 14 mm).



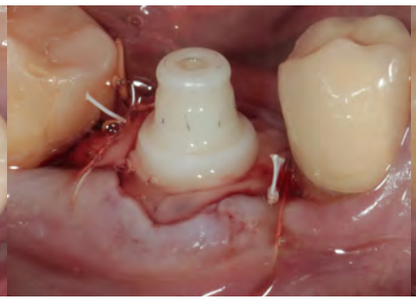
5. Intra-operation. THE Graft Collagen soaked with a liquid PRF matrix.



6. Intra-operation. Defect-oriented design of the bone graft.

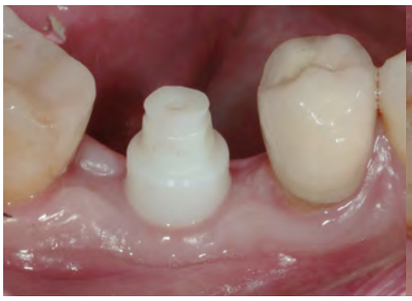


7. Intra-operation. Applied THE Graft Collagen.



8. Intra-operation. Peri-implant augmentation, crestal coverage with a solid PRF matrix, and approximation of the wound margins.

9. Post-operation, 1 week after implant placement.



10. Post-operation, 2.5 months after implant placement.

11. Final prosthesis, 3 months after implant placement. Occlusal view. Delivered cemented veneered zircon crown.

12. Final prosthesis, 3 months after after implant placement. Buccal view.

Author

Dr. Marcus Engelschalk

Slow Digital Dentistry, Munich, Germany

- Private Dental Office based in Munich
- Treatment focus on implantology and oral surgery
- Research focus on intraoral scans (IOS), CAD CAM based prosthetics on implants and digital implantology and AI / AR
- Board member of MINEC Board International
- Speaker at the Part-time MSc. in Esthetic Dentistry at the Goethe Universität, Frankfurt a.M., Germany
- Visiting Professor at the Universiapolis, Int. University of Agadir, Morocco

Prof. Dr. med. habil. Dr. med. Dr. med. dent. Shahram Ghanaati

Deputy Director of Department for Oral, Cranio-Maxillofacial and Facial Plastic Surgery,
Medical Center of the Goethe University Frankfurt, Germany

- 1997 - 2004 Study of Medicine, Johannes Gutenberg University Mainz
- 2005 - 2009 Study of dentistry, Johannes Gutenberg University Mainz
- Since 2013 Head of the Head and Neck Tumor Center of the University Center for Tumor Diseases
- Since 2016 Deputy Director of the Department
- 2017 Appointment as Associate Professor (APL professor)

Dr. med. dent. Peter Randelzhofer

Implant Competence Centrum Munich, Germany

- 1997 - 2001 University training in prosthodontics and implantology
- 1997 - 2001 Scientific assistant at the ALU (Albert-Ludwigs-University) Freiburg, Dept. of prosthodontics; directed by Prof. Dr. Dr. J.R. Strub
- 2001 - 2011 Senior physician
- 2001 - 2011 Academic Center Oral Implantology Amstelveen - Netherlands; Head: Dr. Gerd de Lange
- Since 2011 Co-founder of the ICC - M with Claudio Cacaci, Munich Germany

Dr. Oliver Zernial

Private practice, Kiel, Germany

- Specialist in Oral and Maxillofacial Surgery
- Certified implantologist by the German Society for Implantology (DGI)
- Certified Quality Manager QMB (TÜV-Nord)
- Member of the German Society for Implantology (DGI)
- Member of the German Society of Dental, Oral and Maxillofacial Medicine (DGZMK)
- Inventor of Kieler Sushi Technique

Dr. med. dent. Torsten S. Conrad M.Sc.

Zentrum für Innovative Zahnheilkunde, Bingen, Germany

- 1989 Graduated Johannes Gutenberg University Mainz
- 1996 Specialist dentist for oral surgery
- 1996 Established own practice in Bingen
- Master of Science in Oral Implantology at Steinbeis University Berlin
- Lecturer at the DTMD, University for digital technologies in medicine & dentistry (Luxemburg) and Academic teaching and research institution Johann Wolfgang Goethe-University Frankfurt

Dr. Pablo Bustillo

Private practice, Madrid, Spain

- 2009 Graduated in Dentistry at the University Alfonso X, Madrid
- 2011 Master in Oral Surgery, Implants and Periodontology at University Alfonso X, Madrid
- Associate Professor in Master Oral Surgery at Alcala Missisipi University
- Associate Professor in Master Implantology and Periodontology at Isabel I University
- Associate Professor at CESPU University
- Associate Professor at Europea Miguel de Cervantes in Porto

Dr. Fabrizio Colombo

Private practice, Milan, Italy

- 2004 Graduated in Dentistry and Dental Prosthesis at Università degli Studi, Milan
- Master degree in Oral Surgery at Università degli Studi, Milan and Implantology and Implant Prosthesis at the University of Brescia
- Member of AISOD (Italian Association of Dental Seats)
- Speaker at workshops and events about Oral Surgery and in particular Regenerative Surgery and Implantology
- Author of magazines WW, and the work winner of the “Poster Award” category “Advanced clinical cases” at “I° International Congress” IAO (Italian Academy of Osseointegration)
- Attended Emerging Leader Program 2022-2023 sponsored by FOR ORG (Foundation for Oral Rehabilitation

Dr. Jérôme Surmenian

Private implantology practice, Nice, France

- Graduated Dental School in Nice, France
- Master of Science degree in Oral Biology in Boston University and Certificate of Advanced Graduate Study in Periodontology and Implantology from Boston University, USA
- Instructor at Surmenian Institute, teaching predictable bone augmentation protocols

Dr. Stavros Eleftheriou

Private practice, UK

- Graduated from the Aristotle University of Thessaloniki, Greece and trained in Oral & Maxillofacial Surgery at Rambam Medical Center, Haifa, Israel
- 2003 Established private practice in Cyprus
- 2015 Established private practice in UK
- Lectures, and runs courses and workshops on advanced subjects in Implantology Internationally
- Instructor and Key Opinion Leader for several Implant, Surgical Instrument, and Biomaterial companies
- Specialist in Oral Surgery in the UK and Specialist in Maxillofacial & Oral Surgery in Cyprus

Dr. Sarah Al-Maawi

Dentist at Clinic for Oral-, Maxillofacial and Facial Plastic Surgery, University Clinic Frankfurt, Germany

- 2012-2017: Study of dentistry, Goethe university Frankfurt am Main
- Since 2018: Study of medicine, Goethe university Frankfurt am Main
- Since 2016: Scientific fellowship at FORM-lab, Department for Oral, Cranio Maxillofacial and Facial Plastic Surgery, Medical Center of the Goethe University Frankfurt, Frankfurt am Main, Germany
- Numerous International Publication

Manufacturer
Purgo Biologics Inc. 812, 27, Dunchon-daero 457beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, 13219, Korea
Tel. +82 70 4827 5352 | E-mail: overseas@purgobio.com | www.purgobio.com

EU Importer
Purgo Biologics Europe SAS 1 Square Félix Bloch – Pôle Activ Océan – 85300 Challans – France
Tel. +33 (0)2 28 10 61 02 | E-mail. europe@purgobiologics.com | www.purgo-europe.com