The 2nd Clinical Case Report of "THE Graft"

O Purgo Biologics Solution



THE Graft Natural Bone Substitute Cancellous Granules



A new level of technology with evidence

Feel the clinical freedom on the science & safety

'THE Graft' Clinical case Report Summary A Technology that gives a predictable clinical result to every Surgeon



Jeon Ju Miso Moa Dental Clinic Dr. Kwon Young Sun







The ICB cortical bone and THE Graft used on the extraction has great volume and bony tissue maintenance and BioCover has great handling property which makes it easy for beginners.



Yonsei Goeun Miso Dental Clinic Mokdong branch Dr. Mun Won Kyu





After maxillary premolar extraction the soft tissue was healed and the implant was inserted. GBR was performed on the buccal side and bone defect area and 2nd surgery took place after 5.5 months. Photographs were taken during the 2nd curgeny and deptal proceeding completed extended.







- After maxillary premolar extraction the soft tissue was healed and the implant was inserted. GBR was performed on the buccal side and bone defect area and 2nd surgery took place after 5.5 months. Photographs were taken during the
- 2nd surgery and dental prosthesis was completed.
- A satisfying amount of bony issue and volume around the implant was found.



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After extraction due to severe molar vertical bone absorption on the bottom right mandible, THE graft was used for preservation surgery. The defected area was effectively recovered and great new bone regeneration was observed during histologic observation.







The buccal side was severely damaged and severe bone defect was found around the extraction. This case was cured by using THE Graft, and proper bony tissue and volume for implant insertion was formed.



Dr. Oh Hee Young

Purgo



THE Graft was inserted along with the implant in the buccolingual 2 months after extraction and placed titanium mesh. Satisfactory bony tissue and volume was observed.







THE Graft was inserted after splitting of maxillary anterior alveolar bone. Increase of the bone width and the alveolar bone on the buccal side occurred, the implant was inserted after 6 months, and completed dental prosthetic using zirconia. Even in the current recall status, it showed steady volume maintenance of the alveolar bone.

Hvo Dental Clinic

Dr. Park Jeong Chul



Chung Ang Bo Hoon Hospital Dental Clinic Dr. Lee Dong Woon





Bone quality and shape was very satisfactory. #25 is an area where implant has not been inserted, and THE Graft was placed for volume maintenance. After placing THE Graft, samples of vertical biopsy of already existing autologous bone was collected.

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Seoul Hi Ahn Dental Clinic Dr. Jang Geun Young





The patient spent a considerable time in the edentulous status which made the width of alveolar ridge very narrow. THE Graft has great handling property which made it easy to buildup volume, and bone regeneration was observed on the bone defect during the 2nd surgery after 4 months.



Yonsei Sweet Dental Clinic Dr. Jang Yong Joo





The patient felt pain the bottom right molar, and was diagnosed with root fracture after radiographic inspection. Extraction took place and after 1.5 months, alveolar bone insertion took place using THE graft and BioCover. After 3 months, the implant was inserted during the 2nd surgery.





The patient felt discomfort due to missing molar on the right side and according to the result of CT and tests, there is a lack of horizontal bone elevation. Therefore, implant after bone grafting was planned for treatment. THE Graft and BioCover were used on ridge augmentation. After 4 months the implant was inserted, and implant prosthetic is planned for treatment after 3 months.



Seoul E-Chon

Dental Clinic Dr. Han Seung Min





Photography and dental prosthetic was completed during abutment connection surgery which took place 3.5 months after implant. The new tissue had better quality than before and BioCover membrane was observed to have barrier function maintenance up to 3~4 months.







As a result of using THE Graft on a ridge defect, there was effective bone regeneration. Abutment connection surgery took place 5 months after inserting the implant, and photography and dental prosthetic was completed. A clear improvement in the quality of new tissue was observed.





Jeon Ju Miso Moa Dental Clinic Dr. Kwon Young Sun Treatment on bone defect area during immediate insertion of implant after extraction of #12



1 Side view before surgery



2 Flap opening after extraction (14.9.25)



3 Insertion of Implant



4 Insertion of ICB Cortical bone on the extraction and gap



Insertion of THE Graft on labial side, placement of the absorbable membrane Bio Cover



6 Side view before surgery



7 Suture



8 Healing of soft tissue before 2nd surgery



G The ICB cortical bone and THE Graft used on the extraction has great volume and bony tissue maintenance **JJ**



9 2nd surgery re-entry, bone formation observed after lifting the valve



10 Cover Screw removed



11 Healing abutment made



12 Prosthesis occlusal surface (15.8.20)



13 Lateral view of Prosthesis



14 CT before surgery



15 CT after Surgery



16 CT after Prosthesis





Yonsei Goeun Miso Dental Clinic Mokdong branch Dr. Mun Won Kyu

Clinical case on bone defect treatment during implant on maxillary premolar #14



CASE¹⁶

1 Side view before surgery (14.7.17)



2 Occlusal surface before surgery



3 Flap opening (14.7.19)



Implant placement



5 Inserting THE Graft



6 Placing resorbable membrane Bio Cover



7 PTFE suture BioTex



8 After removing Suture (14.7.24)



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After maxillary premolar extraction the soft tissue was healed and the implant was inserted. **J** GBR was performed on the buccal side and bone defect area and 2nd surgery took place after 5.5 months. Photographs were taken during the 2nd surgery and dental prosthesis was completed



9 Check- up after 4 weeks (14.8.21)



10 2nd surgery re-entry (15.1.6)



11 Cover screw check



12 Healing abutment made



13 Lateral view of Prosthesis (15.2.27)



14 Occlusal surface of Prosthesis



15 Panorama before surgery



16 Panorama 4 months after surgery





Yonsei Goeun Miso Dental Clinic Mokdong branch Dr. Mun Won Kyu

Clinical case on bone defect treatment during implant on maxillary premolar #14



CASE 17

Side view before surgery (14.7.26)



2 Occlusal surface before surgery



3 Flap opening (14.7.26)



Implant placement



5 Inserting THE Graft



6 Placing resorbable membrane Bio Cover



7 PTFE suture BioTex



8 After removing Suture (14.8.7)



After maxillary premolar extraction the soft tissue was healed and the implant was inserted. **JJ** GBR was performed on the buccal side and bone defect area and 2nd surgery took place after 5.5 months. Photographs were taken during the 2nd surgery and dental prosthesis was completed



9 2nd surgery re-entry (15.1.24)



10 Cover Screw check



11 Healing Abutment made



12 Removal of suture (15.2.14)



13 Lateral view of Prosthesis (15.3.17)



14 Occlusal surface of Prosthesis



15 Panorama before surgery



16 Panorama after surgery





Hyo Dental Clinic Dr. Park Jeong Chul Clinical case on implant placement after extraction and preservation on #46, 47



1 Side view before surgery



2 Removing the Bridge of #46,47 (14.10.17)



3 Flap opening, observation of bone defect



4 Panorama of Implant placement on #46, insertion of THE Graft on #47



5 Suture



6 Healing of soft tissue before 2nd surgery (15.2.14)



Re-entry for implant placement on #47 (15.2.24)



8 Collecting biopsy sample



After extraction due to severe molar vertical bone absorption on the bottom right mandible, THE graft was used for preservation surgery. The defected area was effectively recovered and great new bone regeneration was observed during histologic observation



9 Implant placement on #47



10 Lateral view of Prosthesis (15.8.21)



11 Panorama before surgery (14.10.1)

Pathologic observation of Tissue



12 Panorama after Prosthesis (15.8.21)





- 1. Decalcified section showed the production of thick trabecular bone which were well anastomosed each other. These new bones were admixed with foci of small graft bones, which were almost resorbed and modified by osteoblastic new bone.
- 2. The remaining graft bones were hematoxinophilic and partly degraded into granular materials.
- 3. There appeared no inflammatory reaction and no stromal fibrosis in the marrow tissue.
- 4. The graft lesion was competent with excellent bony remodeling, producing anastomosed trabecular structure.

Pathologic diagnosis

#47, mesial bone, THE Graft, for 4 1/4 months.

Excellent bony remodeling.

- Kang Lung Won Ju University Dental Hospital Department of Oral Pathology
- Surgical Pathology Report, OS 2015-048





Hyo Dental Clinic Dr. Park Jeong Chul Recovery and implant placement on alveolar bone extraction and preservation on #14



1 Occlusal surface after extraction and before surgery (15.2.4)



2 Flap Opening (15.2.4)



3 Buccal bone loss



4 Inserting THE Graft



5 Suture



6 Recovery of Soft tissue before 2nd surgery (15.7.29)



7 Implant placement re-entry (15.7.29)



8 Collecting Biopsy Samples



The buccal side was severely damaged and severe bone defect was found around the extraction. **J**J This case was cured by using THE Graft, and proper bony tissue and volume for implant insertion was formed



9 Implant Placement



10 Healing of soft tissue (15.9.4)



11 Panorama of Frist examination (15.1.26)



12 Check-up 5 months after bone grafting (15.7.1)



13 Panorama after Implant placement (15.7.29)



14 Check-up 5 weeks after implant placement (15.9.4)



Partial bony remodeling, Kang Lung Won Ju University Dental Hospital Department of Oral Pathology Surgical Pathology Report, OS 2015–077







Pohang Yes Dental Clinic Dr. Oh Hee Young Extraction of #24 due to Chronic periodontitis and implant placement through vertical bone increase



1 Occlusal surface before surgery (13.12.5)



2 Flap Opening (14.2.4)



3 Implant placement



4 Inserting THE Graft, placing Titanium Mesh



5 2nd surgery re-entry (14.5.15)



6 Removal of Titanium Mesh



7 Cover Screw check



8 Front view of prosthetic (14.7.3)



THE Graft was inserted along with the implant in the buccolingual 2 months after extraction and placed titanium mesh. Satisfactory bony tissue and volume was observed



9 Side view of prosthetic



10 Occlusal surface of prosthetic



11 Panorama before surgery (13.11.19)



12 Panorama after Prosthetic (14.8.7)



13 CT1 before surgery (13.11.19)



14 CT2 before surgery



15 CT1 after prosthetic (15.8.14)



16 CT2 after prosthetic





Pohang Yes Dental Clinic Dr. Oh Hee Young Clinical case of Implant treatment using ridge split technique on #14, 21



1 Incision of maxillary anterior (13.8.6)



2 Flap Opening



3 Ridge split proceeded



4 Insert THE Graft (large granule)



5 Placement of resorbable membrane Bio Cover and Titanium mesh



6 Before Implant placement re-entry (14.2.13)



7 Implant placement after removing Titanium mesh. Check on maintenance of Bio Cover (14.2.13)



8 Implant placement



THE Graft was inserted after splitting of maxillary anterior alveolar bone. Increase of the bone width and the alveolar bone on the buccal side occurred, the implant was inserted after 6 months, and completed dental prosthetic using zirconia. Even in the current recall status, it showed steady volume maintenance of the alveolar bone



9 Suture



6

10 re-entry for abutment entry (14.8.13)



11 Dental Prosthetic (15.3.13)



12 Occlusal surface of prosthetic



13 Panorama before surgery (13.9.4)



14 Panorama after prosthetic (13.3.31)



15 CT before surgery (13.7.19)



16 CT after surgery (15.8.26)







Chungang Bo Hoon Hospital Dental Clinic Dr. Lee Dong Hoon

#24 Ridge Split, delayed implantation #26~27 Extraction and immediated implantation, Lateral sinus approach



1 Flap opening (15.3.19)



2 Ridge split, lateral sinus approach technique



3 Implant placement



4 Inserting THE Graft



5 Application of resorbable membrane Ossix Plus



6 Suture



7 2nd surgery re-entry (15.8.12)



8 Cover Screw check



Bone quality and shape was very satisfactory. #25 is an area where implant has not been inserted, Bone quality and shape was very satisfactory. #23 is all area where inplate the and THE Graft was placed for volume maintenance. After placing THE Graft, samples of vertical biopsy of already existing autologous bone was collected



9 Healing abutment entry, Collecting Biopsy sample

13 CT before surgery (15.3.4)

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10 Suture



11 Panorama before surgery (15.2.13)



15 CT after surgery (15.7.9)



12 Panorama after surgery (15.7.9)





#27







'Favorable bony remodeling, Kang Lung Won Ju University Dental Hospital Department of Oral Pathology Surgical Pathology Report, OS 2015–076







Seoul Hi Ahn Dental Clinic Dr. Jang Geun Young #45,46 implantation with horizontal ridge augmentation



1 Occlusal surface before surgery (14.10.10)



2 Flap Opening (14.10.10)



3 Implant Placement



4 Observation of bone defect on the buccal side



5 Inserting THE Graft



6 Placing resorbable membrane Bio Cover



7 Stabilizing membrane



8 Suture



The patient spent a considerable time in the edentulous status which made the width of alveolar ridge very narrow. THE Graft has great handling property which made it easy to buildup volume, and bone regeneration was observed on the bone defect during the 2nd surgery after 4 months



9 Healing of soft tissue before 2nd surgery



10 2nd surgery re-entry (15.2.6)



11 Healing Abutment entry



12 Panorama before surgery



13 Radiograph after surgery (15.3.2)







Yonsei Sweet Dental Clinic Dr. Jang Young Joo

Clinical case on bone defect after implant placement on #46



1 Side view before surgery (15.4.23)



2 Occlusal surface before surgery



3 Flap Opening (15.4.23)



4 Implant placement



5 Inserting THE Graft



6 Placing resorbable membrane Bio Cover



7 PTFE Suture BioTex



8 Side view after suture



The patient felt pain the bottom right molar, and was diagnosed with root fracture after radiographic inspection. **5** Extraction took place and after 1.5 months, alveolar bone insertion took place using THE graft and BioCover. After 3 months, the implant was inserted during the 2nd surgery



9 Before removing suture (15.4.30)



10 Check-up after 2 weeks (15.5.14)



11 2nd surgery re-entry (15.7.10)



12 Panorama of first examination (15.3.3)



13 Panorama before surgery (15.4.16)



14 Panorama after surgery (15.4.28)



15 Radiology 1.5 months after 1st surgery (15.6.12)



16 Radiology afer 2nd surgery (15.7.10)





Yonsei Sweet Dental Clinic Dr. Jang Young Joo

Implant placement after surgery increasing mandible molar lateral bone #45~47



1 Side view before surgery



2 Occlusal surface before surgery



3 Flap Opening (15.3.19)



4 Inserting THE Graft



5 Placing resorbable membrane Bio Cover



6 PTFE suture BioTex



7 Before moving suture (15.3.30)



8 After removing suture



The patient felt discomfort due to missing molar on the right side and according to the result of CT and tests, **JJ** there is a lack of horizontal bone elevation. Therefore, implant after bone grafting was planned for treatment. **JJ** THE Graft and BioCover were used on ridge augmentation. After 4 months the implant was inserted, and implant prosthetic is planned for treatment after 3 months



9 2nd surgery re-entry (15.7.13) Collecting Biopsy sample



10 Healing Abutment entry



11 Panorama before surgery (15.2.21)



12 Panorama after 2 months (15.6.17)



13 Panorama after implant placement (15.7.13)





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Partial bony remodeling with		
good prognosis,		
Kang Lung Won Ju University Dental		
Hospital Department of Oral Pathology		
Surgical Pathology Report, OS 2015-075		







Seoul E-Chon Dental Clinic Dr. Han Seung Min

Implant placement after Extraction and preservation #47



Side view before surgery (14.8.21)



2 Flap opening (14.8.21)



3 Inserting THE Graft



4 Placement of resorbable membrane BioCover



5 PTFE suture BioTex



6 Before removing suture (14.9.5)



7 After removing suture



8 Healing of soft tissue before implant placement



Photography and dental prosthetic was completed during abutment connection surgery which took place 3.5 months after implant. The new tissue had better quality than before and BioCover membrane was observed to have barrier function maintenance up to 3~4 months



9 re-entry for implant placement (15.3.13)



10 Implant placement



11 re-entry for abutment entry (15.6.30)



12 Healing abutment entry (15.7.7)



13 Prosthetic side (15.8.13)



14 Panorama before surgery



15 Panorama after implant placement



16 Prosthetic Panorama







Seoul E-Chon Dental Clinic Dr. Han Seung Min

Implant placement after Extraction and preservation #47



1 Side view before surgery (14.10.21)



2 Flap opening (14.10.21)



3 Inserting THE Graft



4 Placement of resorbable membrane BioCover



5 PTFE suture BioTex



6 Before removing suture (14.10.30)



Healing of soft tissue before implant placement (15.2.26)



8 re-entry for implant placement (15.2.26)



As a result of using THE Graft on a ridge defect, there was effective bone regeneration. Abutment connection surgery took place 5 months after inserting the implant, and photography and dental prosthetic was completed.



9 Implant placement



10 Healing of soft tissue



11 re-entry for abutment entry (15.7.16)



12 Healing abutment entry



13 Prosthetic side (15.8.14)



14 Panorama before surgery



15 Panorama after implant placement



16 Prosthetic Panorama



Porcine vs Bovine

The idea that Bovine is most suitable for bone graft material. **THE** Graft will change your mind.

The superiority comparison of Cell Biocompatibility



Cell Adhesion Test

It is proven through the cell adhesion test that THE graft has equally outstanding cell engraftment effect as the already existing bovine- derived graft materials.



MTT Viability Test

The MTT Viability Test is to measure color formation through fluorescent pigments, calculate the surviving cells and evaluate the viability of the cell. According to the absorbance density and viability evaluation, THE Graft had outstanding results compared to the other bone graft material.



Increase of Bone Test

Bovine Derived bone graft material and THE Graft were each soaked in simulated body fluid (SBF) for 3days, 7days, and 14 days. The change of mass was measured on the 14th day and as a result, the mass increase of the bovine-derived bone graft material (B-Brand) increased by 13.43%. On the other hand THE Graft increased by 23.61% which proved that THE graft had higher mass increase.



Porcine based bone graft with outstanding biocompatibility, THE Graft

THE Graft 👪

www.purgo-biologics.co.kr

Porcine vs Bovine

The idea that Bovine is most suitable for bone graft material. **THE** Graft will change your mind.

The Comparative Research Study by Animal Test

In Vivo Test: Thesis on bone formation effect [Won Kwang University Dental Hospital]

This research was to analyze new bone regeneration of the porcine-based graft material. Both bovine and porcine based graft material showed osteogenesis characteristics on the bone defect, and no inflammatory cell or giant cells were found during histological analysis. Therefore, it proves that porcine based graft material can be a safe alternative for bovine based graft materials.

구분		% bone area	Lamellar/woven bone ratio
4주후	B-brand (Bovine-based)	32.98±15.45	3.43±1.74
	THE Graft (Porcine- based)	36.31±8.36	2.41±0.81
8주후	B-brand (Bovine-based)	37.38 ± 48.36	3.32±1.97
	THE Graft (Porcine- based)	44.13±28.27	14.82±11.27
After 4 weeks After 8 weeks After 4 weeks After 8 weeks			

THE Graft 😬

In Vivo Test: Thesis on bone regeneration ability [Yonsei University Dental Hospital]

During the two and eight weeks, no unusual complications were found in both bovine based and porcine based bone graft materials. During the 2nd week, blood vessel and connective tissue, immature new bone was observed. During the 8th week a great amount of osteoblast and new bone formation around the graft material was observed. Especially during the 8th week, the porcine based graft material crated the greatest amount of new bone. Therefore, porcine based graft materials are biocompatible, and has effective new bone regenerating abilities and volume maintenance.materials.



Transversal histologic presentation of each group at 8 weeks



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