

Clinical Cases Report on **7 Bony Defects**

Clinical Guideline for treatments with THE Graft™



New bone formation on the surface of **THE Graft™**



THE Graft™
Natural Bone Substitute
Cancellous Granules

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EXTRACTION SOCKET

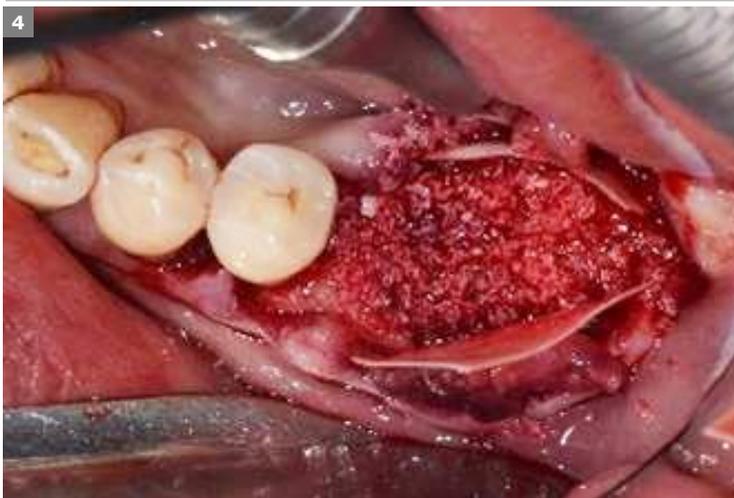
01 Extraction Socket

Dr. JC Park (Hyo Dental Clinic)



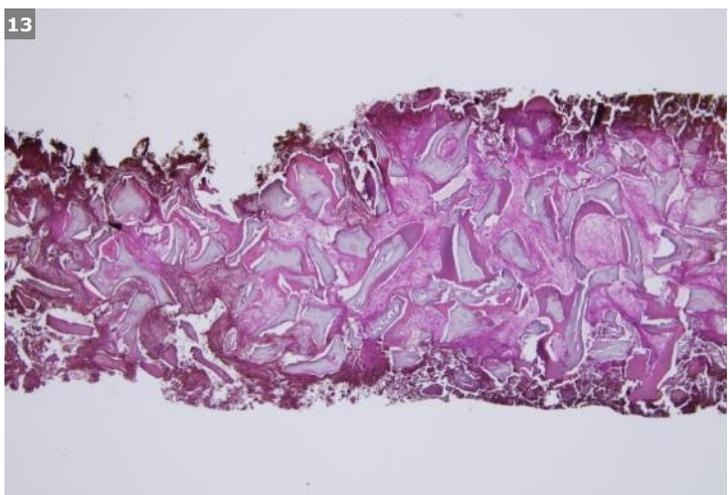
Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
M	70	Extraction Socket	THE Graft / BioCover	N/S

Note A 70-year-old male patient, who presented to the dental clinic for implant placement to replace tooth #36 which was extracted due to severe pain and mobility. A ridge preservation was carried out using THE Graft and double-layered BioCover which could compensate for the loss of buccal bone. An adequate healing of defected bone was seen after 5 months upon the placement of implant on #36. Biopsy was taken from tissue around the implant using a Trepine bur and the result revealed a new bone formation around bone graft material.



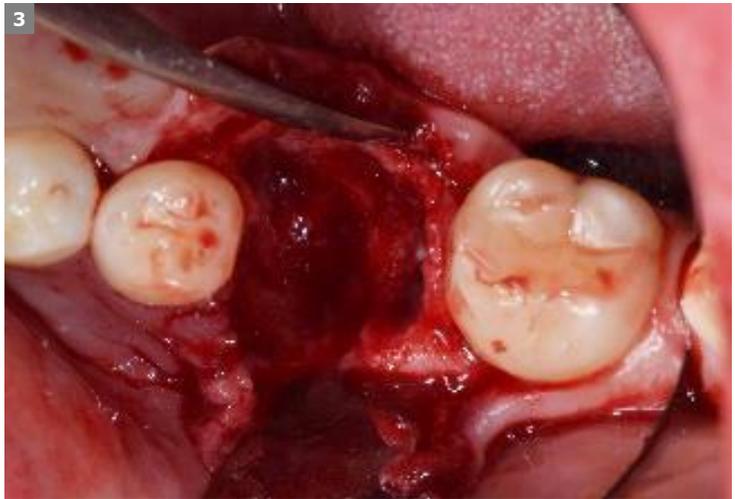

Natural Bone Substitute
 Cancellous Granules

- 1,2. Pre-Op
- 3. #36 extraction
- 4~6. Socket preservation with THE Graft and BioCover
- 7~9. Re-entry surgery after 5 months
- 10. Final restoration
- 11,12. Post-Op 5 months, 9 months radiographic
- 13. H&E staining



02 Extraction Socket

Dr. JC Park (Hyo Dental Clinic)

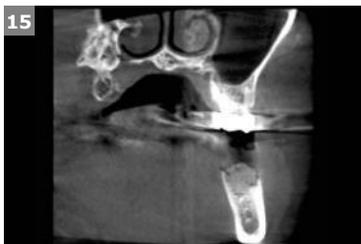


Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	35	Extraction Socket	THE Graft / OpenTex	N/S
Note	A 35-year-old female patient presented with a vertically fractured mesial root on #36. Radiographic examination revealed severe loss within extraction socket and around the fractured root and hence, an extraction socket preservation was decided to be carried out before implant placement. THE Graft and OpenTex membrane were placed and favourable healing of defected lesion could be seen radiographically after 7 months.			




Natural Bone Substitute
 Cancellous Granules

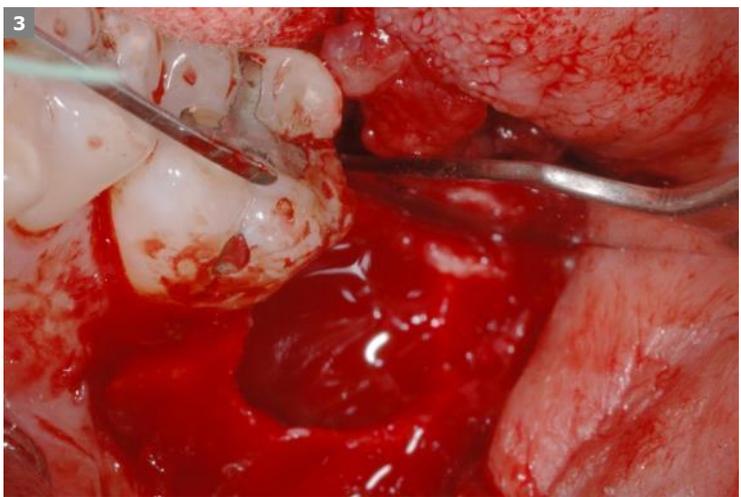
- 1,2. Pre-Op
- 3~5. #36 extraction and socket preservation with THE Graft and OpenTex
- 6. Stitch out after 10days
- 7. Membrane removal after 4 weeks
- 8~11. Implantation after 4 months
- 12. Final restoration
- 13. Pre-Op radiographic
- 14. Final restoration radiographic
- 15,16. Post-Op, Post-Op 7 months CT



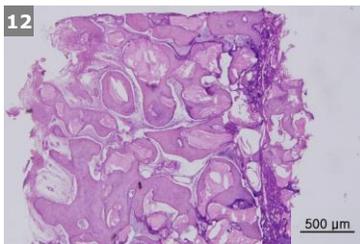
03 Extraction Socket

Dr. DW Lee (Veterans Health Service Medical Center)

Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
M	46	Extraction Socket	THE Graft / OSSIXPLUS	Hypertension
Note	This case shows management of two- and three-walled defects using THE Graft and OSSIXPLUS for extraction socket preservation. Upon removal of suture, a partial exposure of extraction socket was seen however, bone grafting was not carried out any further for implant placement. Favorable result was reported for 2years follow-up with the stable marginal bone structure.			



- 1,2. Pre-Op view
- 3. Bone resorption on the buccal and lingual side
- 4,5. GBR and sutured with granulation tissue
- 6. Stich-out after 2 weeks
- 7. Post-Op
- 8~10. Re-entry surgery after 7 months
- 11. Final restoration
- 12. H&E staining
- 13,14. Post-OP 7months, 13 months



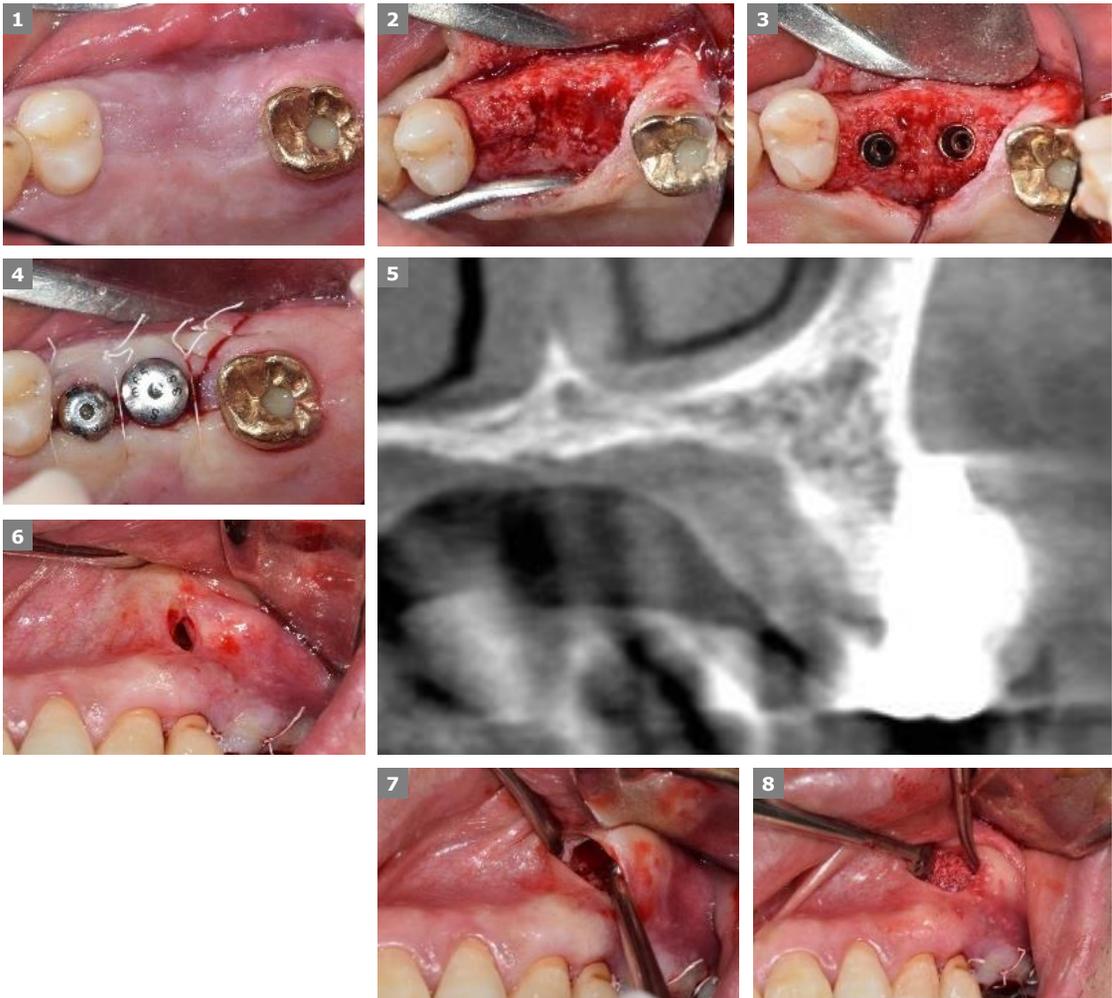


FENESTRATION DEFECT

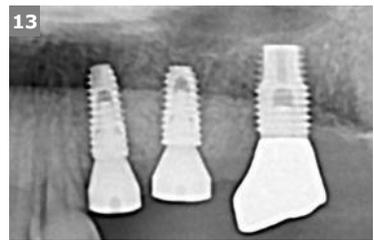
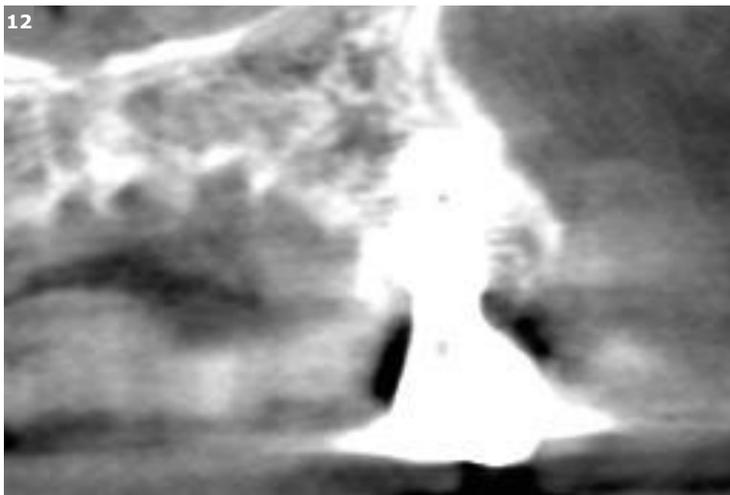
01 Fenestration Defect

Dr. JC Park (Hyo Dental Clinic)

Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	61	Fenestration	THE Graft / OpenTex	N/S
Note	A 61-year-old female patient presented for implant placement to replace missing teeth #25, 26. Fenestration defect could be recognized on the CT Scan at the apex of tooth #25 and GBR was performed as a treatment of option.			



1. Pre-Op
2. Flap reflection
- 3,5. CT taking after #25 implantation, apex fenestration
- 6~8. Lateral approach grafting on fenestration site
9. CT taking after GBR
- 10,11. Stitch out after 10 days
12. Post-Op 5 months CT
- 13,14. Post-Op, Post-Op 5 months radiographic
- 15,16. Final restoration

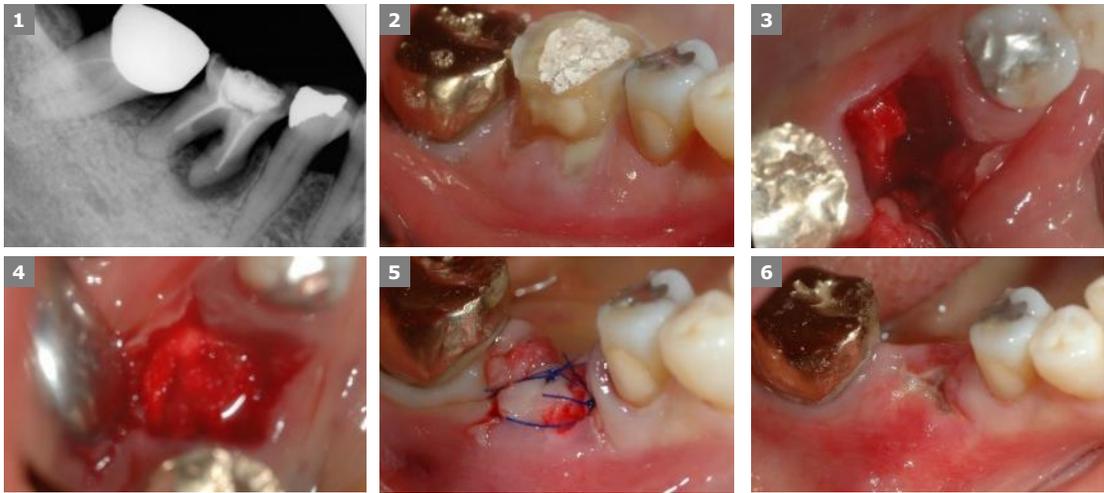




DEHISCENCE DEFECT

01 Dehiscence Defect

Dr. JC Park (Hyo Dental Clinic)



Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	65	Dehiscence	THE Graft / Gide Plug	N/S
Note	<p>A 65-year-old female patient who had an abscess discomfort on chewing associated with tooth #46, presented to the clinic for implant placement. #46 was extracted and the Gide Plug was applied for rapid healing of soft tissue followed by suture placement. THE Graft was used as a bone graft material without using membrane material. Upon doing a re-entry surgery, an adequate volume of newly formed bone was seen that could sufficiently support the implant on buccal aspect. 3 year post-operative CT Scan revealed a complete replacement of defected bony lesion into compact and cancellous bone due to bone grafting with THE Graft.</p>			



- 1,2. Initial visit
- 3. #46 extraction
- 4,5. extraction socket filled with GidePlug and sutured
- 6. Stitch out after 10 days
- 7~11. Implantation and bone grafting after 3 months
- 12. Re-entry surgery after 3 months
- 13. 3 year f/u
- 14,15. Post-Op 11 months, 3 year f/u CT



02 Dehiscence Defect

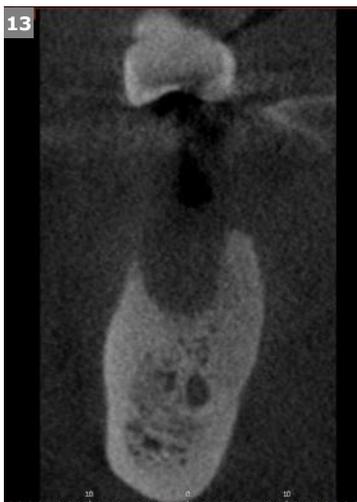
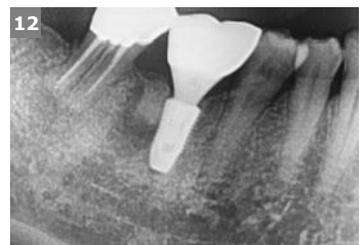
Dr. CK Lee (Crystal Dental Clinic)



Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
M	63	Dehiscence	THE Graft / EZ-Cure	N/S
Note	This case shows a severe alveolar bone loss around tooth #46 which was then extracted due to root fracture. An implant was placed followed by GBR 6 weeks after extraction. A favorable osteointegration with implant surface was seen without any functional problem even after 2 years of initial treatment.			



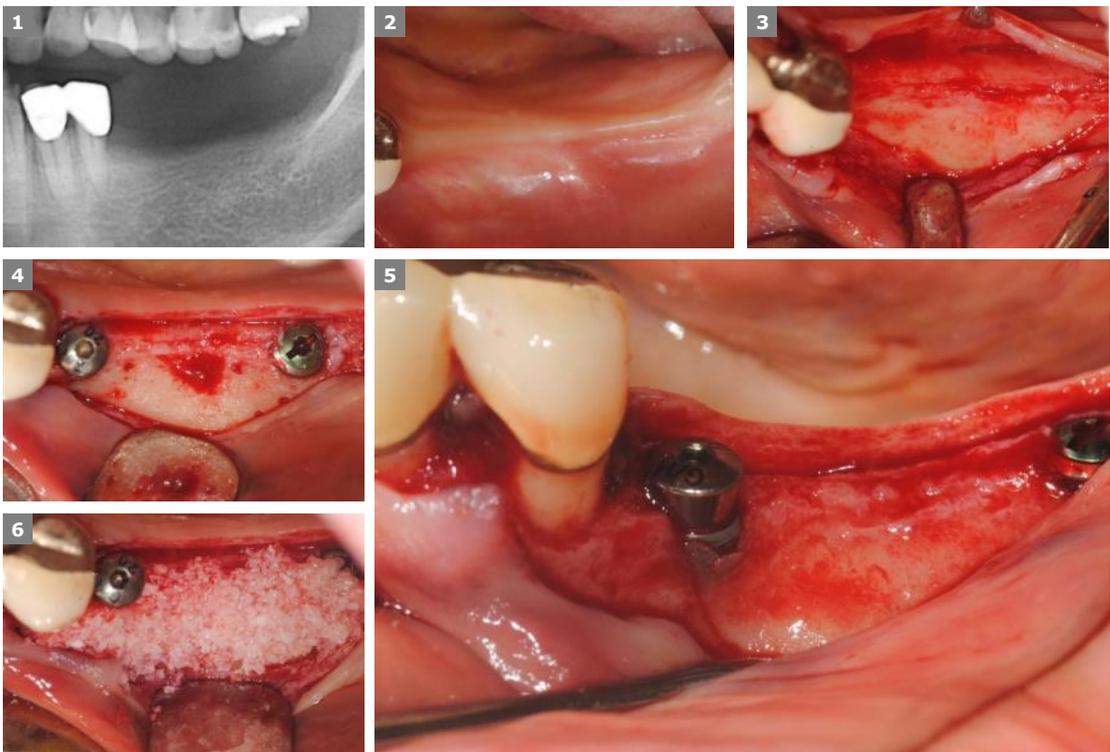
1. Pre-Op view
2. Extraction of fractured tooth (#46 vertical root fracture)
3. Post extraction 6 weeks
4. Implantation
- 5~7. GBR with THE Graft, EZ-Cure and sutured
- 8~10. final restoration
- 11,12. Post-Op, 2 years f/u radiographic
- 13,14. Pre-Op, 2 years f/u CT



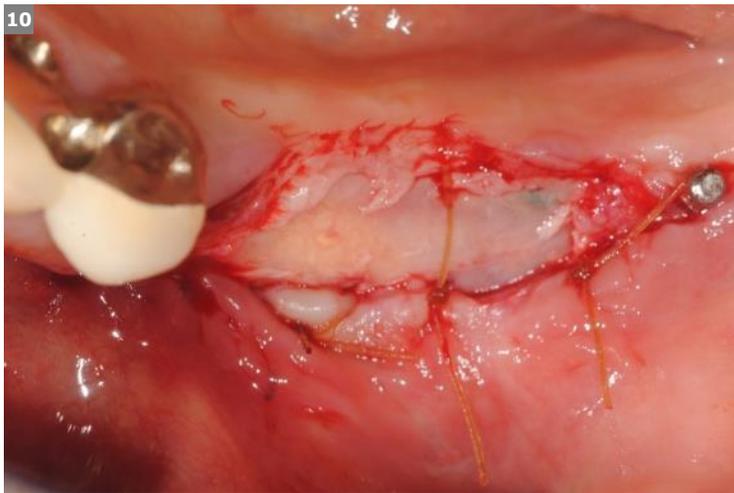
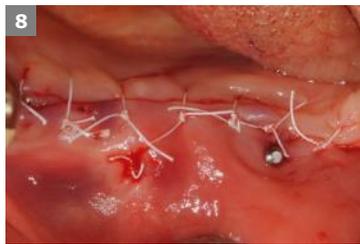
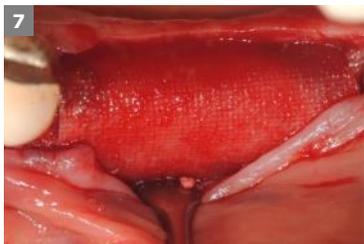
03 Dehiscence Defect

Dr. CK Lee (Crystal Dental Clinic)

Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	59	Dehiscence	THE Graft / BioCover	N/S
Note	This case shows an implant placement on the patient who is a denture wearer on the lower arch. Upon the implant placement, dehiscence defect was found due to thin soft tissue and alveolar bone resorption as a complication of denture wearing. Bone graft and GBR using THE Graft and BioCover was done. THE Graft formed and maintained sufficient amount of bone which helped increase in alveolar ridge formation.			



- 1,2. Pre-Op view
- 3. Flap reflection
- 4,5. Implantation
- 6,7. GBR with THE Graft and BioCover
- 8. PTFE suture, Biotex
- 9. Post-Op 2 months
- 10,11. Re-entry surgery, apically positioned flap and free gingival graft
- 12. Post- 2nd Op. 1 month
- 13. Pre-Op view
- 14. Final restoration and radiographic



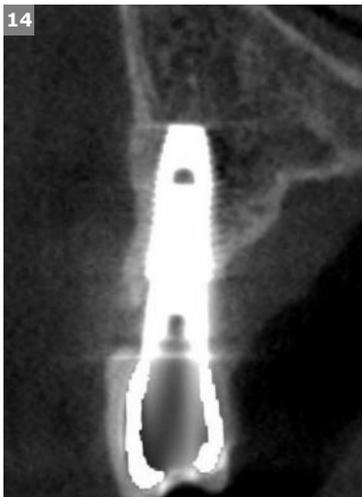
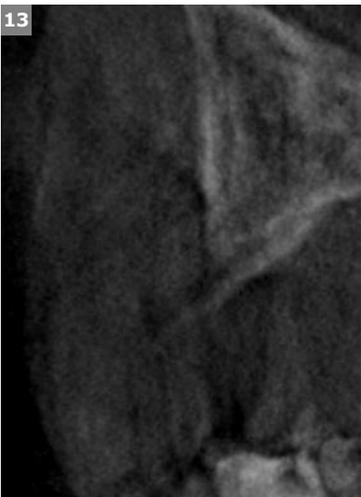
04 Dehiscence Defect

Dr. CK Lee (Crystal Dental Clinic)

Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	51	Dehiscence	THE Graft / Collagen Membrane	N/S
Note	This patient presented with a generalized periodontitis with a severe loss of alveolar bone around #14. An implant was placed at the height of mesial alveolar bone of #15, and defected bony lesion was filled with bone graft and GBR using THE Graft and collagen membrane. An increase in horizontal and vertical buccal bone was seen on the panorama and CT scan.			



- 1,2. Pre-Op view
- 3,4. Flap reflection
- 5. Implantation
- 6~9. GBR with THE Graft and collagen membrane and sutured
- 10. Final restoration
- 11,12. Post-Op, Post-Op 1 year radiographic after final restoration
- 13,14. Pre-Op, Post-Op CT



05 Dehiscence Defect

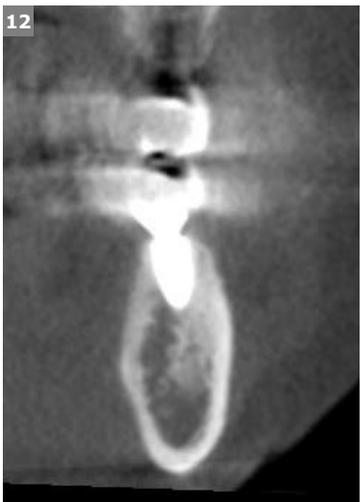
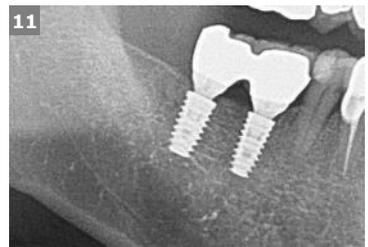
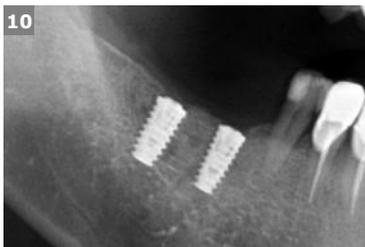
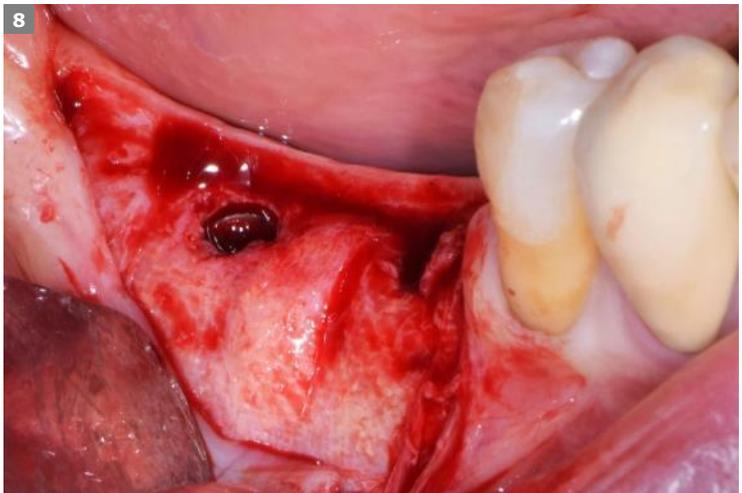
Dr. DW Lee (Veterans Health Service Medical Center)



Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
M	67	Dehiscence	Autogenous Bone, THE Graft / OSSIXPLUS	Diabetes
Note	A GBR using THE Graft and OSSIXPLUS was carried out on the one walled defect lesion. After 3 months of surgery, there was increase in bone volume, and well maintained overlying membrane could be seen. Marginal bone was also highly stable clinically and radiographically after 1 year of surgery.			



- 1,2. Pre-Op clinical view
- 3. #46,47 implantation and decortification
- 4,5. GBR with THE Graft and OSSIXPLUS
- 6~8. Re-entry surgery after 3 months. Overlying membrane was maintained
- 9~11. Pre-Op, Post-OP, Post-OP 7months radiographic
- 12. 1 year f/u CT
- 13. Final restoration

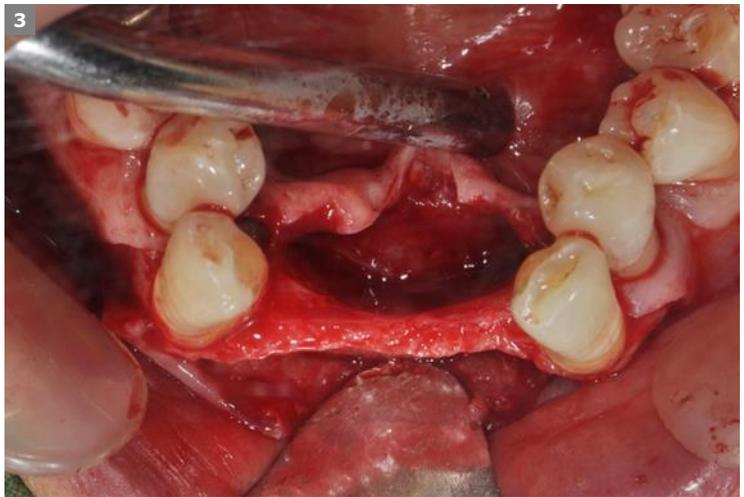




HORIZONTAL DEFECT

01 Horizontal Defect

Dr. KM Min (Seoul Mai Dental Clinic)

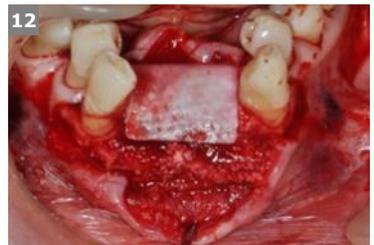
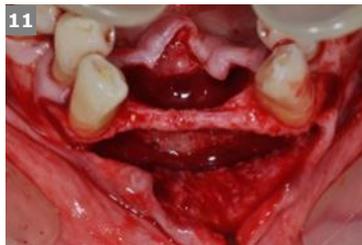
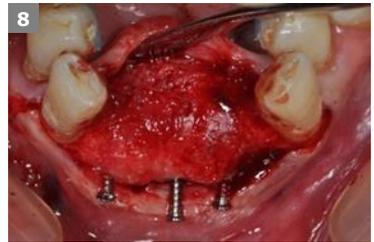
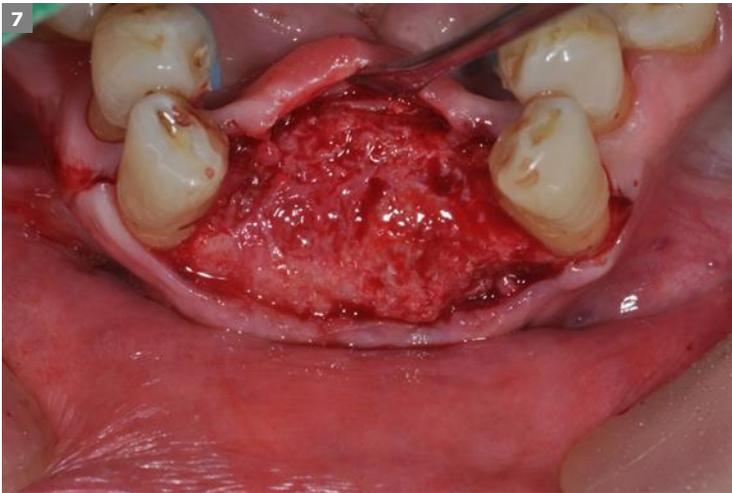


Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
M	70	Horizontal	ICB Block + The Graft / Resorbable Membrane	N/S

Note Fixation of a block bone material towards bucco-lingual direction requires relatively large amount of flap advancing. Releasing incision was made on the lingual side to help increase in superficial layer split thickness on the labial aspect.



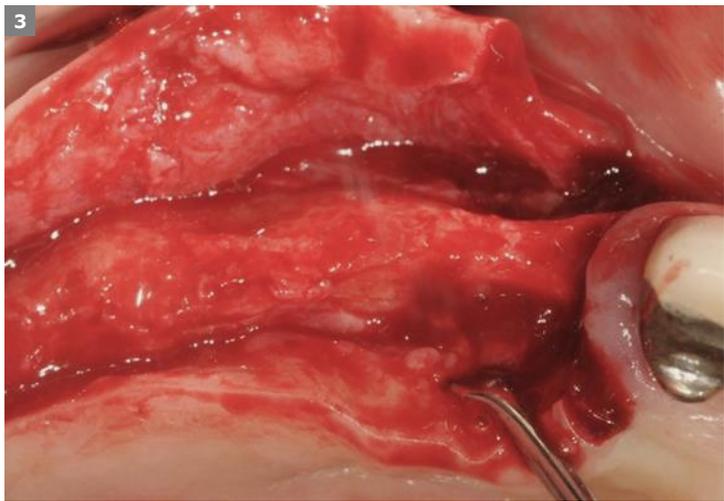
- 2. Pre-Op view
- 3. Flap reflection
- 4. ICB block bone Fixation
- 7. Re-entry Surgery after 7 months, Implantation
- 12. GBR with THE Graft and collagen membrane
- 14. PTFE suture, Biotex



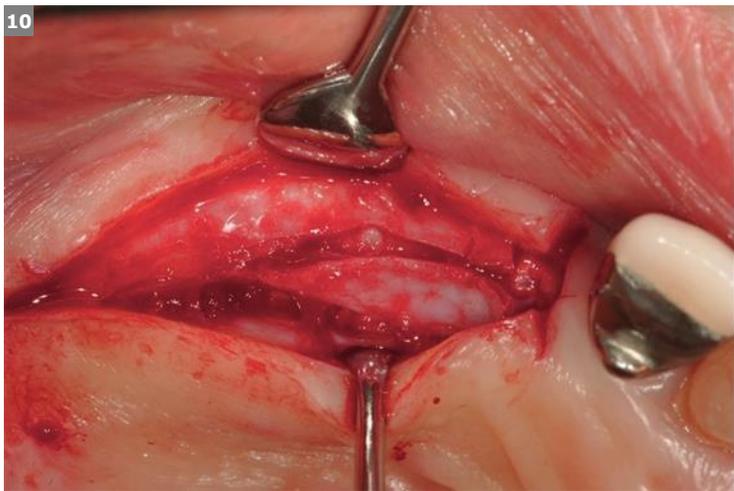
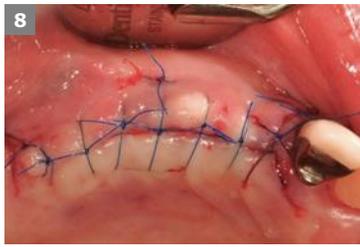
02 Horizontal Defect

Dr. CK Lee (Crystal Dental Clinic)

Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	71	Horizontal	ICB cortical, MBCP/ Collagen Membrane	N/S
Note	A 71-year-old denture wearing patient presented with favourable alveolar bone height but insufficient width of alveolar ridge. Due to the narrow alveolar bone ridge around #13, an implant was placed with 2/3 of implant surface exposure. Bone graft and GBR was performed using ICB cortical and MBCP. CT Scan showed a well-maintained buccal bone even after 1 year of implant loading.			



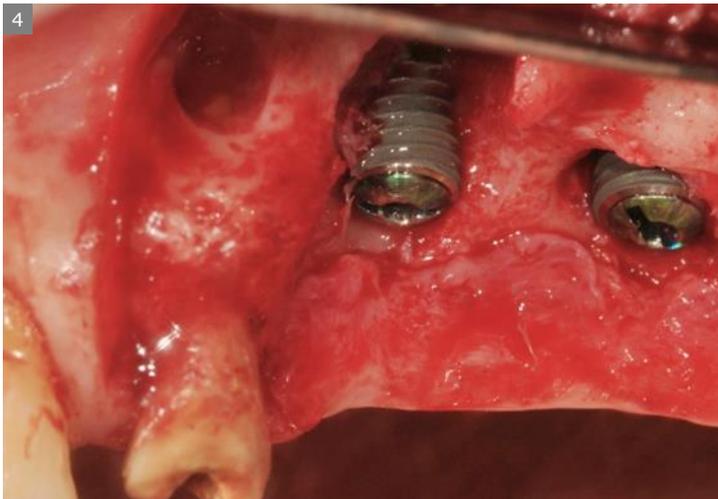
- 1,2. Pre-Op view
- 3. Flap reflection
- 4,5. Implantation
- 6,7. GBR with ICB cortical, MBCP and resorbable membrane
- 8. sutured
- 9,10. Re-entry surgery after 4 months
- 11~13. final restoration
- 14,15. Pre-Op, 1 year CT find restoration



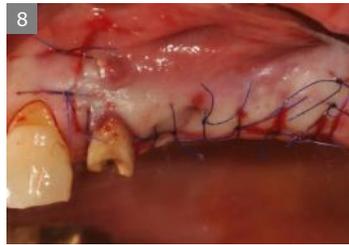
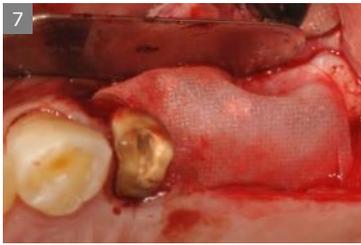
03 Horizontal Defect

Dr. CK Lee (Crystal Dental Clinic)

Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	71	Horizontal	THE Graft / BioCover	Hypertension, Angina
Note	A case report of implant placement on #25, 26. Severe bone loss was found around #25 and treated with bone grafting and GBR. Contained defect and large exposure of implant surface were problematic but well managed with treatment using THE Graft and BioCover.			

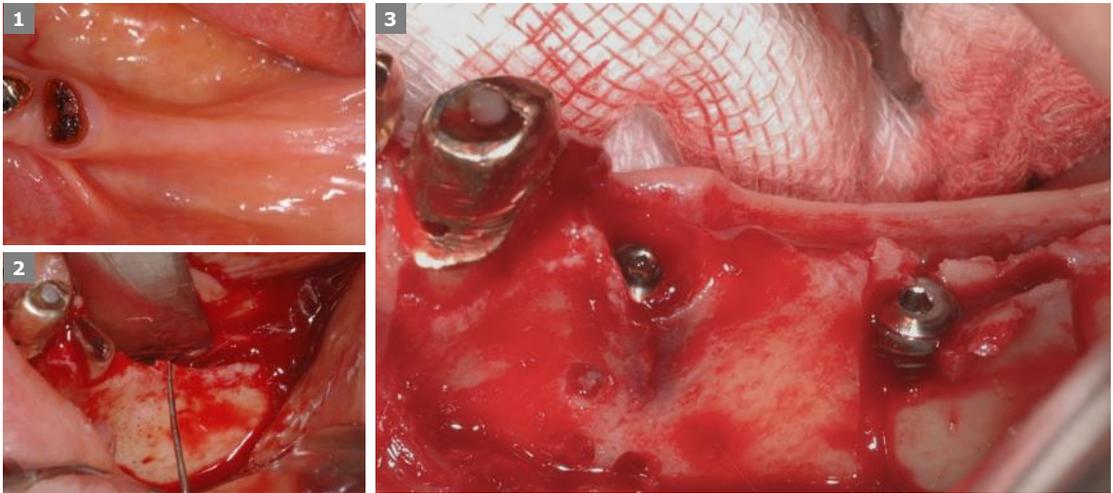


1~3. Pre-Op
4,5. Implantation
6~7. GBR with THE Graft and BioCover
8. sutured
9. Post-Op 2weeks
10~12. final restoration
13,14. Pre-Op, Post-Op 1 year CT (#25 site)

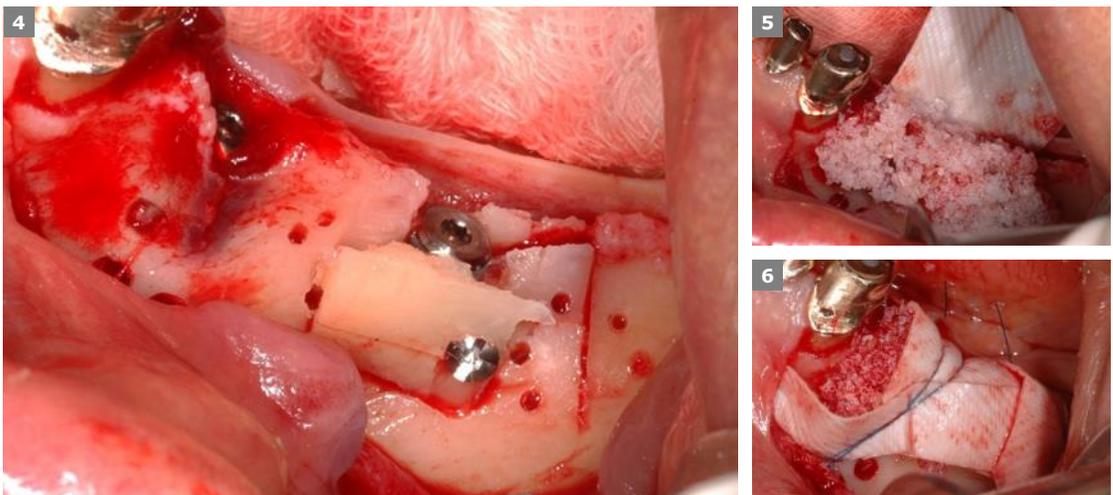


04 Horizontal Defect

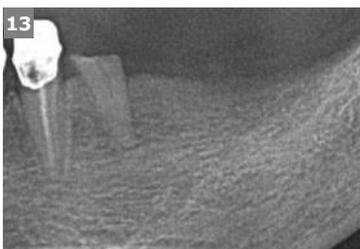
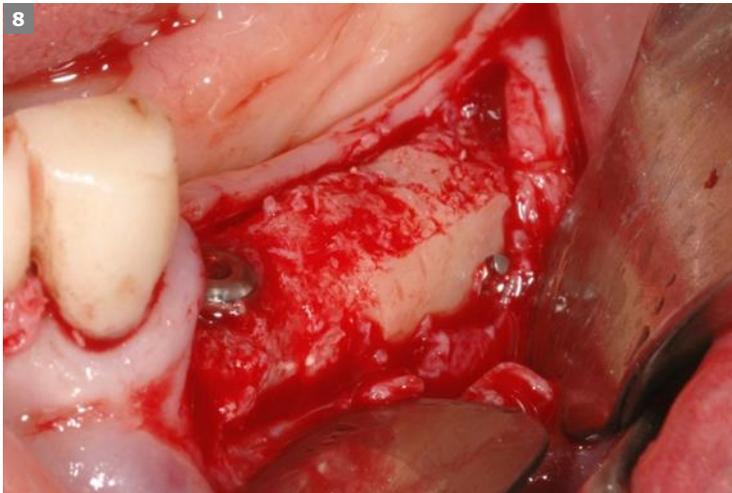
Dr. DW Lee (Veterans Health Service Medical Center)



Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	60	Horizontal	ICB, THE Graft / OSSIXPLUS	N/S
Note	A ridge splitting technique was performed with fixation of segmented buccal bone with screws for maintaining spaces for bone grafting. ICB Cortical bone, THE Graft, and OSSIXPLUS were used and favorable post-operative results could be seen after 5 months.			



1. Pre-Op view
2. severe atrophic ridge
3. Extraction and Immediate implantation on #34, and ridge splitting procedure on #36
4. Fractured part was fixed with screw
- 5,6. ICB cortical, THE Graft and OSSIXPLUS was added
- 7,8. Re-entry surgery after 5 months
9. Free gingival graft
- 10,11. FGG after 14 weeks
12. Final restoration
- 13~15. Pre-Op, Post-Op 3.5 months, 5 months
16. 2 year f/u

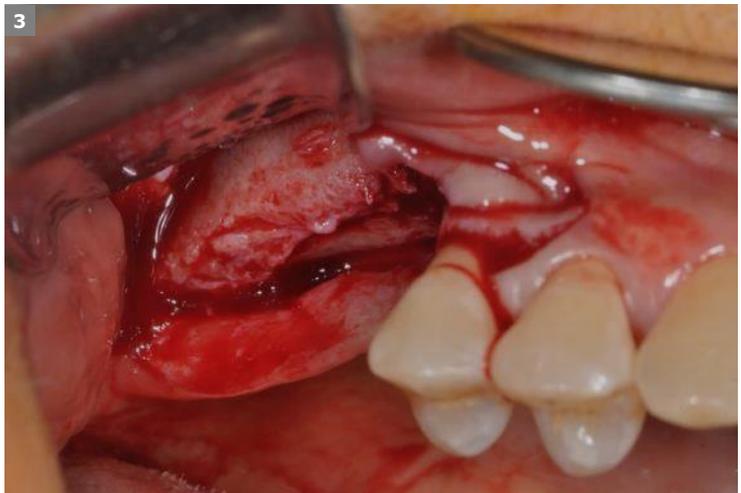




VERTICAL DEFECT

01 Vertical Defect

Dr. KM Min (Seoul Mai Dental Clinic)



Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	59	Vertical	ICB Block+The Graft / Titanium Mesh + Resorbable Membrane	N/S
Note	Block bone material was utilized to increase number of bony walls fixed with screws and the rest was filled THE Graft followed by placing Titanium mesh to provide mechanical support. Resorbable membrane was applied above the Titanium mesh in order to prevent membrane breakage.			



- 1. Pre-Op view
- 3. Flap reflection
- 4. ICB block bone Fixation
- 7. Re-entry Surgery after 7 months, Implantation
- 12. GBR with THE Graft, titanium mesh and collagen membrane
- 14. PTFE suture, Biotex

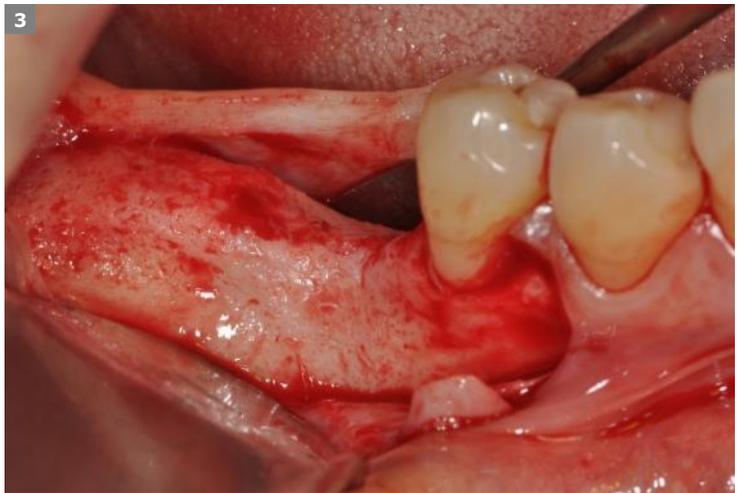
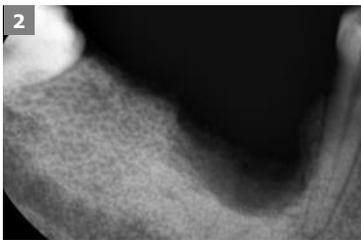




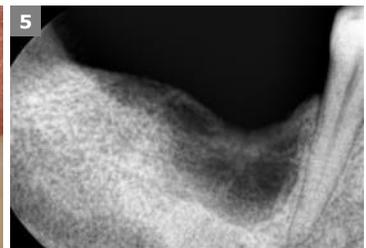
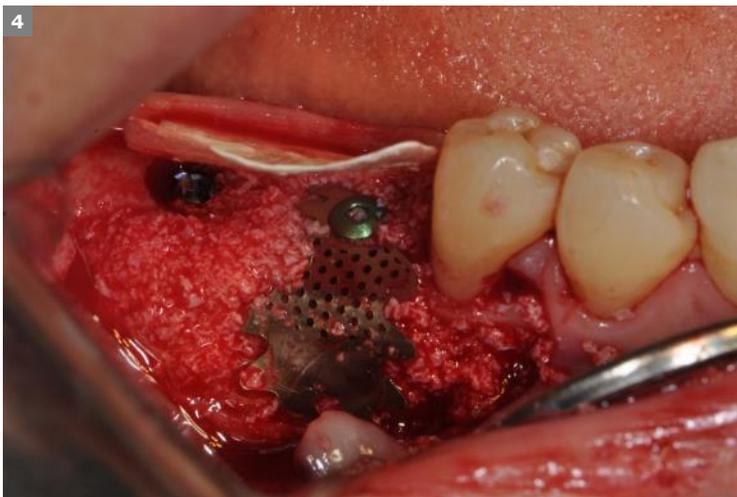
HORIZONTAL & VERTICAL DEFECT

01 Horizontal & Vertical Defect

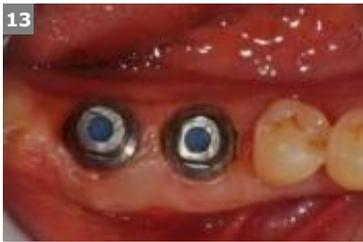
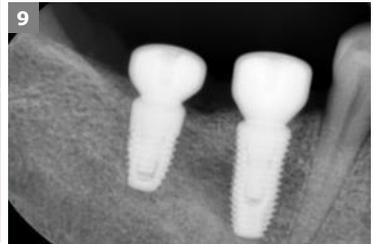
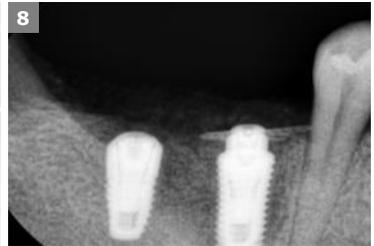
Dr. KM Min (Seoul Mai Dental Clinic)



Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	59	Combined (Horizontal + Vertical)	THE Graft / Titanium mesh + Resorbable membrane	N/S
Note	Maintaining adequate bone depth on the upper part of implant fixture is an important factor for long-term prognosis of newly formed osteogenic cells in the process of implant placement with GBR. Effectiveness of THE Graft rises with its rapid ossification capacity, once there is sufficient space for bone regeneration.			

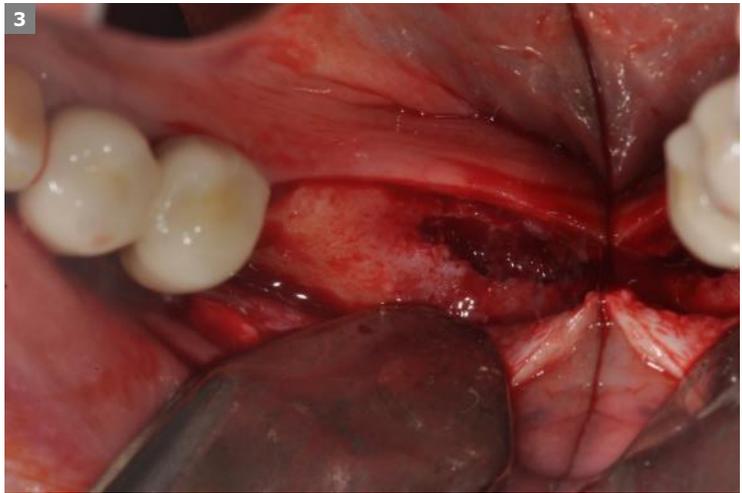
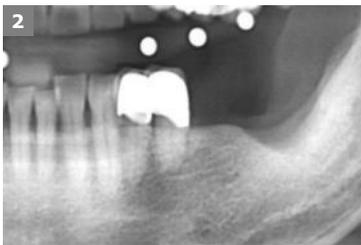


- 1. Pre-Op view
- 3. Flap reflection
- 4. GBR with THE Graft, titanium mesh and collagen membrane
- 7. Re-entry Surgery after 8 months
- 12. Newly formed tissue was observed, resulting in higher intensity



02 Horizontal & Vertical Defect

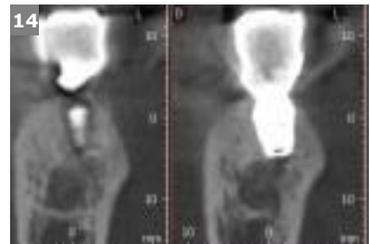
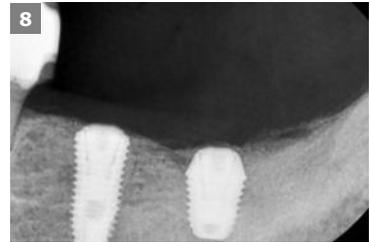
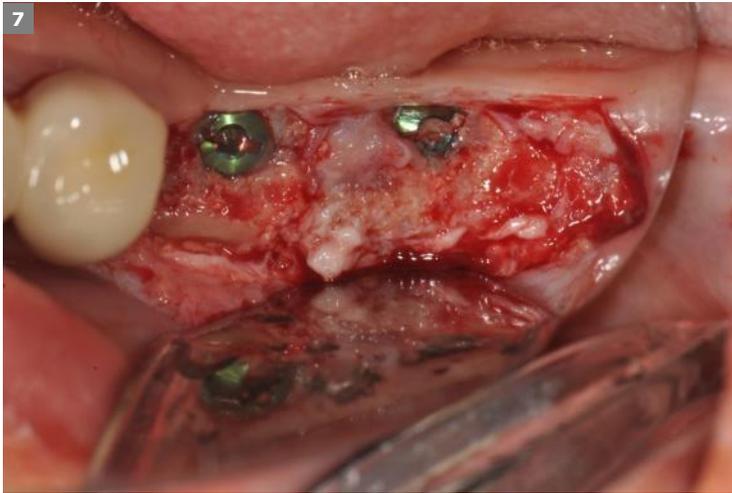
Dr. KM Min (Seoul Mai Dental Clinic)



Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	70	Combined (Horizontal + Vertical)	THE Graft Titanium mesh + BioCover 6	N/S
<i>Note</i>	A ridge splitting technique is often used to maintain space for implant placement. Horizontal and vertical bone formation can be anticipated as the segmented cortical bone is fixed in buccal and occlusal direction. Effectiveness of THE Graft rises with its rapid ossification capacity, once there is sufficient space for bone regeneration.			

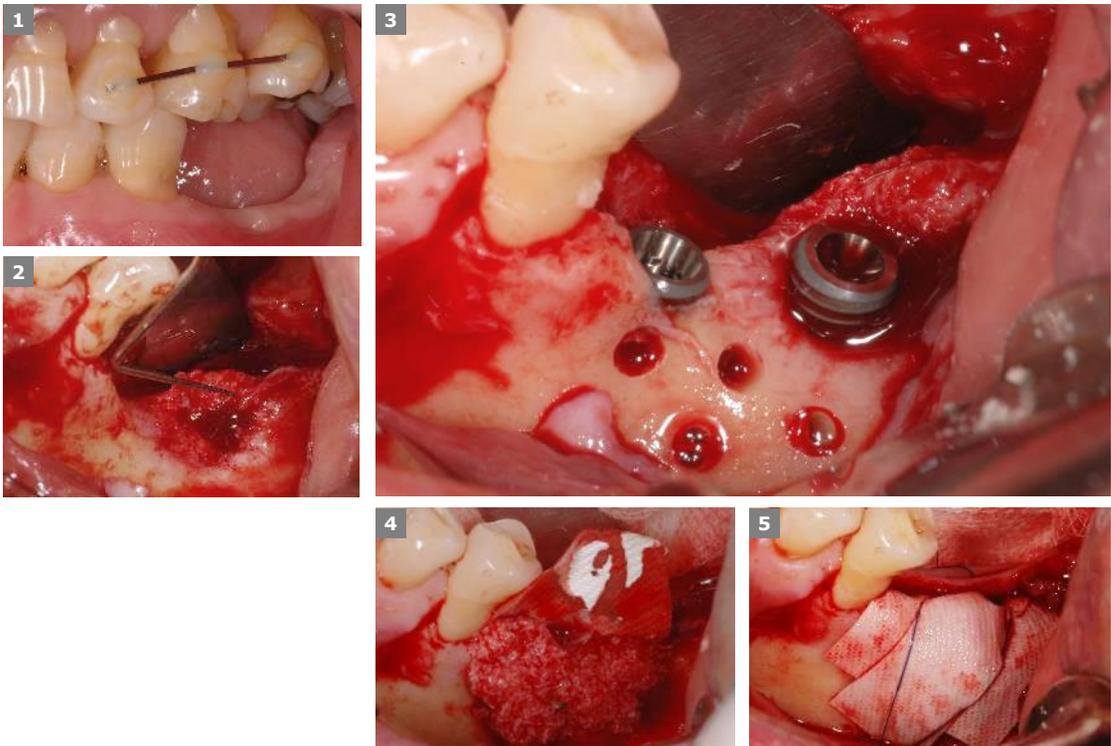


- 1. Pre-Op view
- 3. Flap reflection
- 4. GBR with THE Graft and BioCover6 after ridge split
- 7. Re-entry Surgery after 6 months
- 14. Newly formed tissue was observed, resulting in higher intensity



03 Horizontal and Vertical Defect

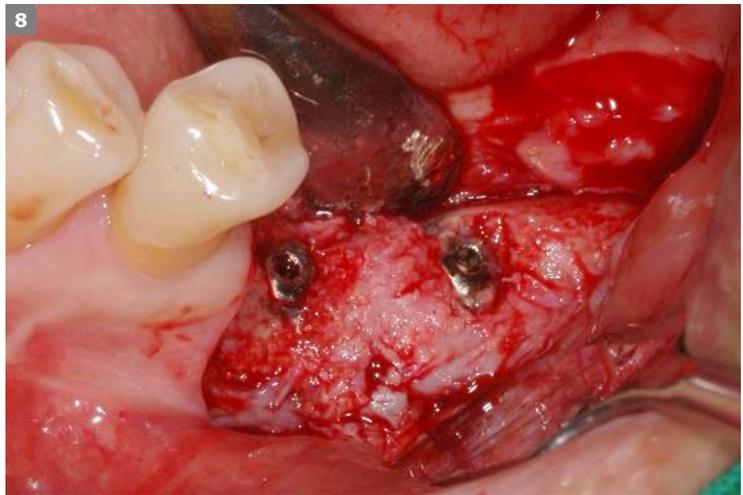
Dr. DW Lee (Veterans Health Service Medical Center)



Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
M	68	Combined (Horizontal + Vertical)	THE Graft / OSSIXPLUS	N/S
Note	This case reports a case of implant placement and bone grafting as a treatment for horizontal and vertical bone defect. #46,47 implantation with decertification was performed followed by GBR using THE Graft and OSSIXPLUS. Re-entry surgery was done after 5 months of initial treatment and an adequate bone formation was seen radiographically.			



- 1. Pre-Op clinical view
- 2~3. #46,47 implantation and decortification
- 4,5. GBR with THE Graft and OSSIXPLUS
- 6~9. Re-entry surgery after 5 months
- 10. final restoration
- 11~14. initial visit, Pre-Op, Post-OP, Post-OP 8 months radiographic

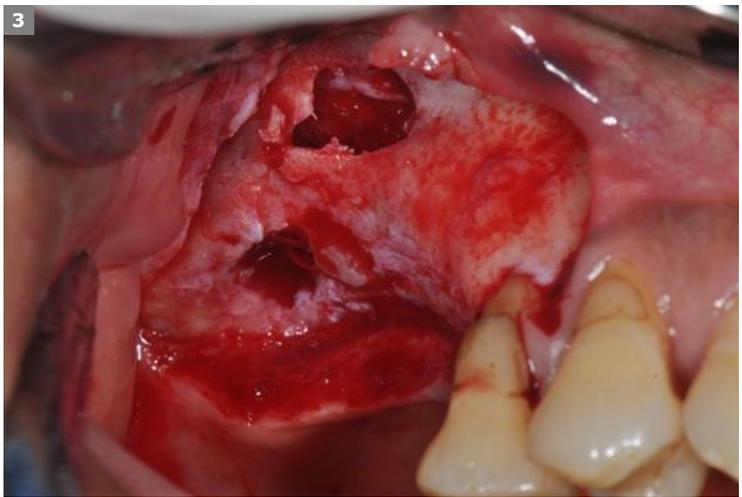




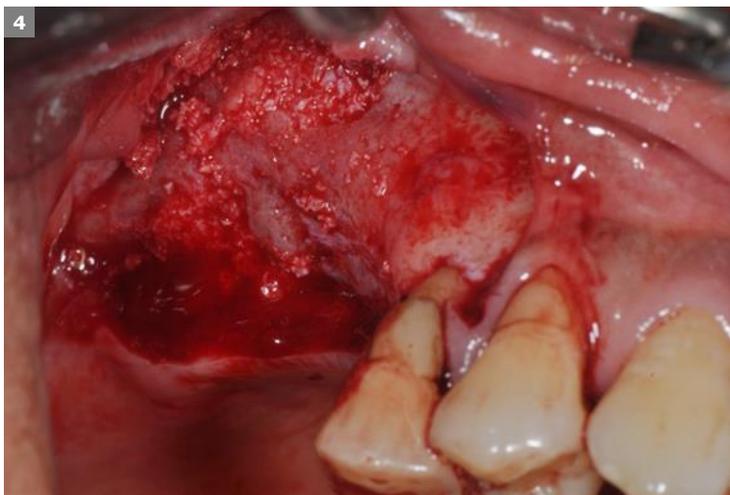
**SINUS
GRAFT**

01 Sinus Graft

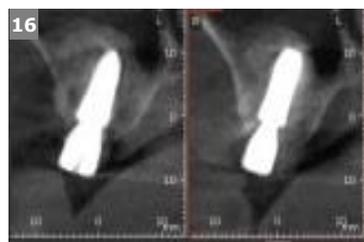
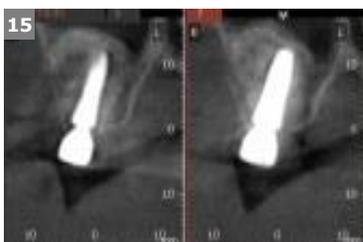
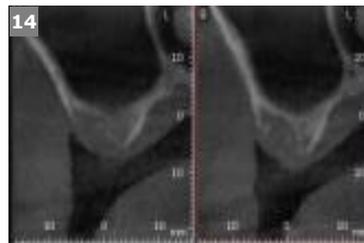
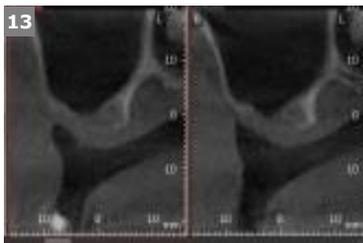
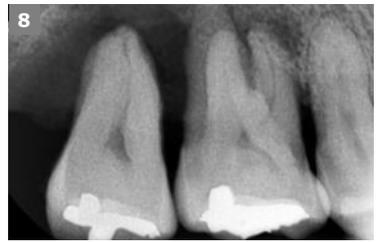
Dr. KM Min (Seoul Mai Dental Clinic)



Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
M	55	Membrane Perforation + Sinus graft	THE Graft / BioCover 6	N/S
Note	A tooth #16 was extracted due to severe periodontitis. Resorption of alveolar bone at the level of maxillary sinus floor often causes sinus membrane perforation accidentally after sinus elevation procedure. In this situation, using resorbable membrane for fenestrated Schneiderian membrane coverage with THE Graft bone material can be a useful option for sinus graft.			

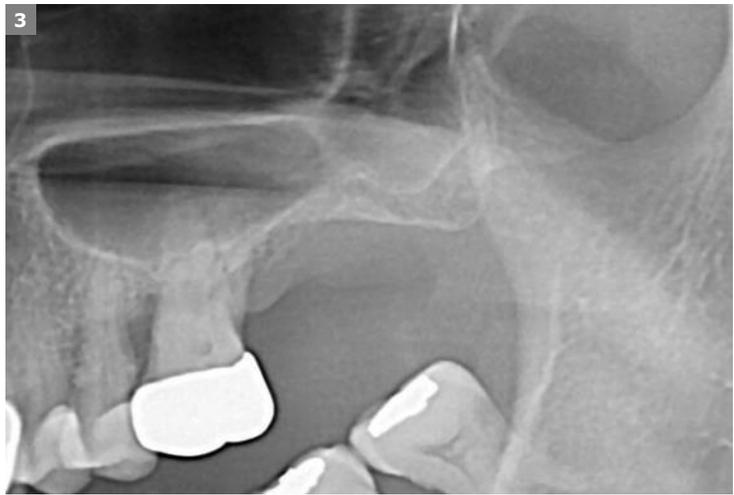


- 1. Pre-Op view
- 3. Flap reflection, Schneiderian membrane perforation was observed
- 4. Repair with THE Graft and BioCover
- 7. Re-entry Surgery after 7 months, Implantation
- 13,14. Pre-Op CT
- 15,16. Post-Op CT



02 Sinus Graft

Dr. JC Park (Hyo Dental Clinic)



Gender	Age	Type of Defect	Material (Bone/Membrane)	PMH
F	58	Sinus graft	THE Graft	N/S
<i>Note</i>	Lateral approach technique was used for sinus elevation and implant placement as there was about 2 mm of bone available for implantation. THE Graft was used and there was no sinus perforation throughout surgical procedure. Newly formed bone could be seen on the CT Scan with cortical bone lining above the implant fixture after 1 year and 6 months after the initial treatment.			



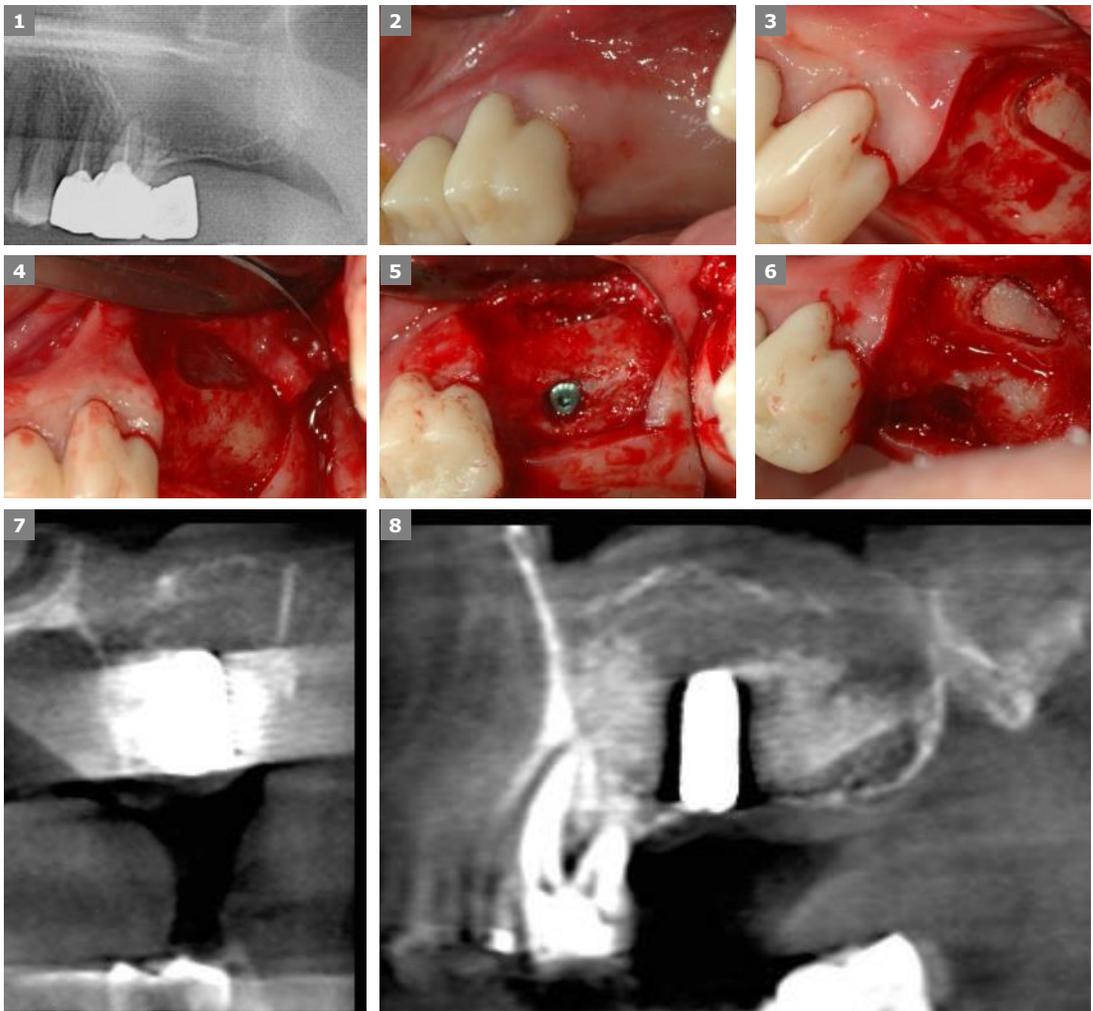

Natural Bone Substitute
 Cancellous Granules

- 1. Initial visit
- 2,3. Pre-Op view, 3 months after #27 extraction
- 4~7. Implantation and lateral approach sinus grafting
- 8~10. Re-entry surgery after 8 months
- 11. Final restoration
- 12,13. Post-Op CT
- 14,15. 1.5years f/u CT



03 Sinus Graft

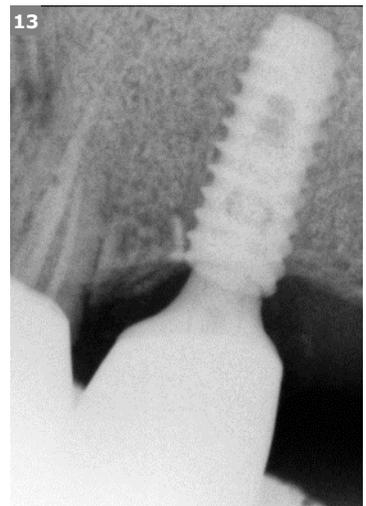
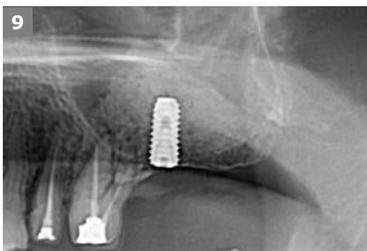
Dr. JC Park (Hyo Dental Clinic)



Gender	Age	Type of Defect	Material (Bone / Membrane)	PMH
F	61	Sinus graft	THE Graft	N/S
Note	Implant placement was discussed due to the discomfort of 3-unit bridges from #25 to 27. Sinus lift with lateral approach technique was performed as less than 2mm of bone were only available for implant placement. THE Graf was placed in the sinus and it supported the implant for 3-years period. THE Graft gradually increases its radiopacity and forms newly formed cortical bone lining above the upper part of the implant.			



1. Initial visit
2. Pre-Op
- 3,4. window opening of lateral wall
- 5,6. Implantation and bone grafting through the opening
7. Post-Op
8. Post-Op 1 month CT
- 9~11. Op day, 3 year f/u radiographic
- 12,13. 3 years f/u CT, X-ray view
- 14,15. 3 years f/u clinical view

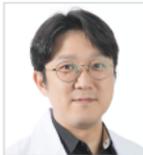


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On-Demand



Allograft



Alloplast



Xenograft



Resorbable
Membrane



Non-Resorbable
Membrane



Sutures