INTERNAL USE ONLY

MedPark

S1

NEW BONE
NEW LIFE

DENTAL
Clinical case

FDA

CE
1434

CONTENTS

CLINICAL CASE 1

Alveolar Ridge Preservation without Membrane

Dr. Chingu kim

Initial assesment A 78- year-old female patient has suffered from gingival swelling & pain due to a vertical root fracture of Lt. 2nd premolar.

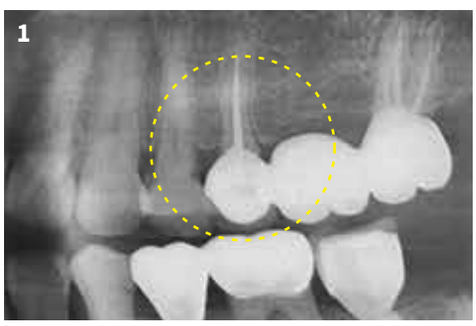
Products **S1 Bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› Extensive bone destruction was observed, including the apical and buccal aspects, as seen in the CT scan. Therefore, an alveolar ridge preservation procedure with S1 was required before placing an implant.

Conclusions

› Despite using S1 alone without membrane coverage for alveolar ridge preservation (ARP), extra-fine soft tissue healing and full coverage were observed within one month. The ridge contour was preserved for 5 months of healing time. Histologic evaluation revealed extra-fine new bone formation in both the quantity and quality of the regenerated bone.



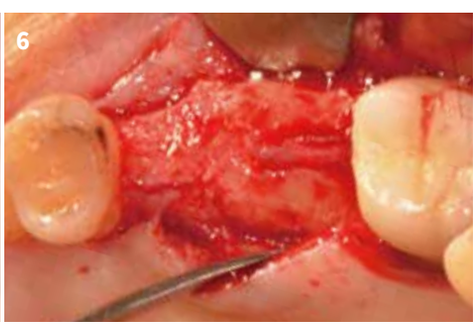
Preoperative X-ray

Tooth extraction

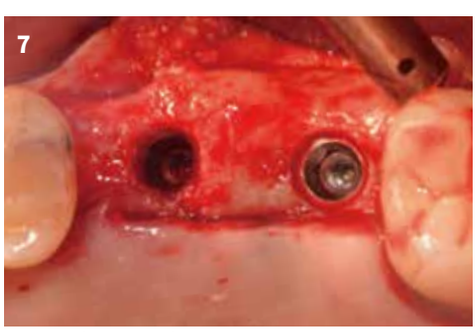
Application of S1 bone graft material and suture (Open socket)

Post OP (2 weeks)

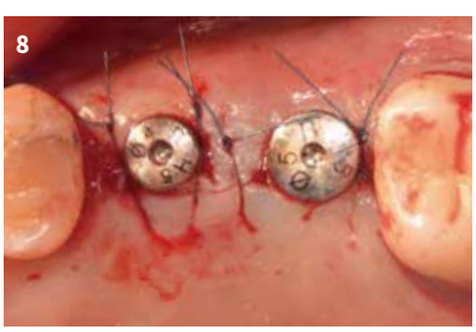
Post OP (2 months)



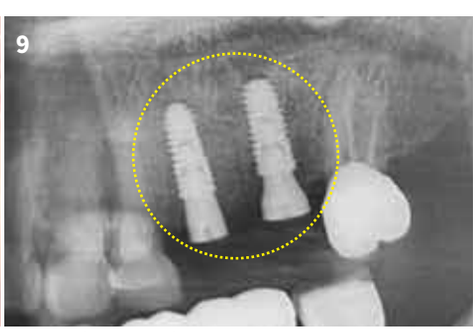
Post OP (5 months)



Post OP (5 months), Implant placement



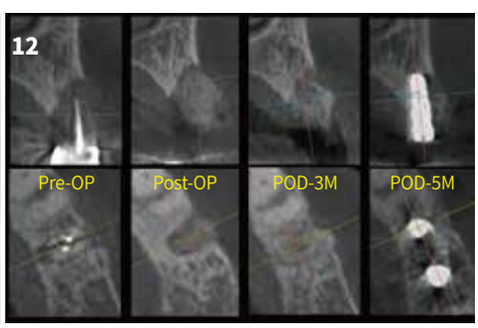
Post OP (5 months), Suture



Post OP (5 months), Implant placement

Post OP (7 months), Custom abutment

Post OP (7 months), Final prosthesis



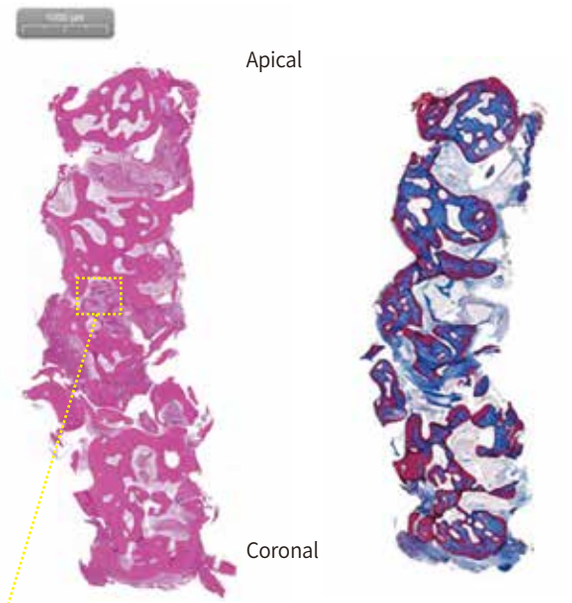
Alveolar bone changes on CBCT

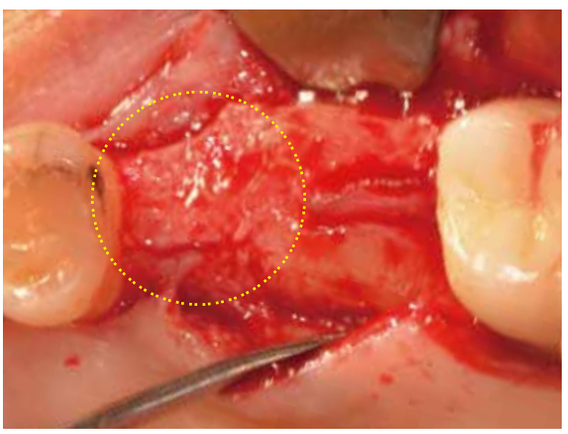
Biopsy time 5 months after using S1 bone graft material

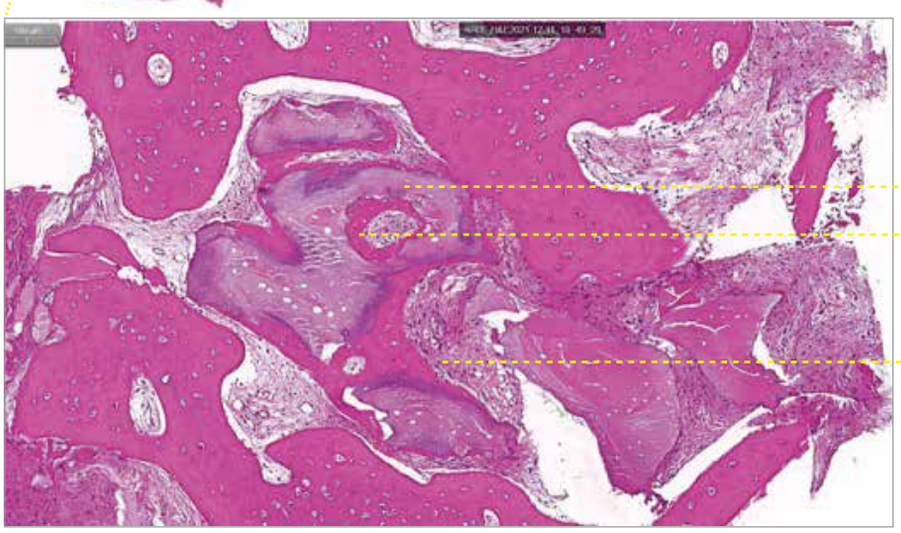
Biopsy method Collected at a depth of 6 mm using a trephine bur from the implant placement area of #13 (universal system)

Findings **Despite the single use of S1 without membrane coverage for ARP, histologic evaluation revealed extra-fine new bone formation in both the quantity and quality of the regenerated bone.**

› Hematoxylin & Eosin staining / Masson's Trichrome staining







Total Region of Interest Area		
	Area (mm^2)	**Percent(%)**
Bone graft area	0.65	8.96
New bone area	**3.43**	**47.24**
Others	43.80	43.80
Total bone area	4.08	56.20

CLINICAL CASE 2

Alveolar Ridge Preservation

Dr. Chingu kim

Initial assesment Advanced peri-implantitis was found on the implant in the left maxilla, with a buccal bone defect, in a 41-year-old male patient who is suspected to be a heavy smoker.

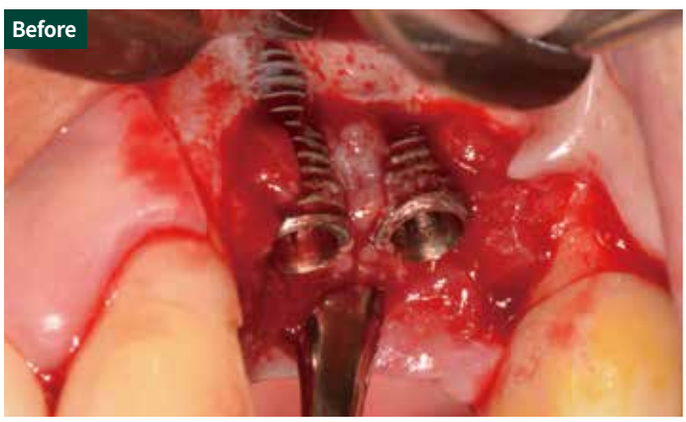
Products **S1 Bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes □ No

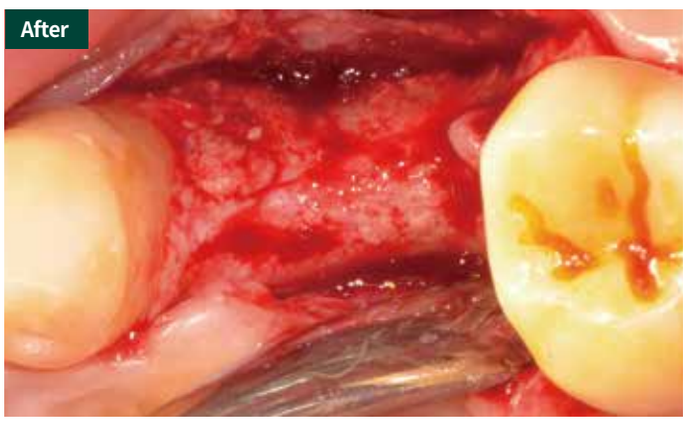
Objectives

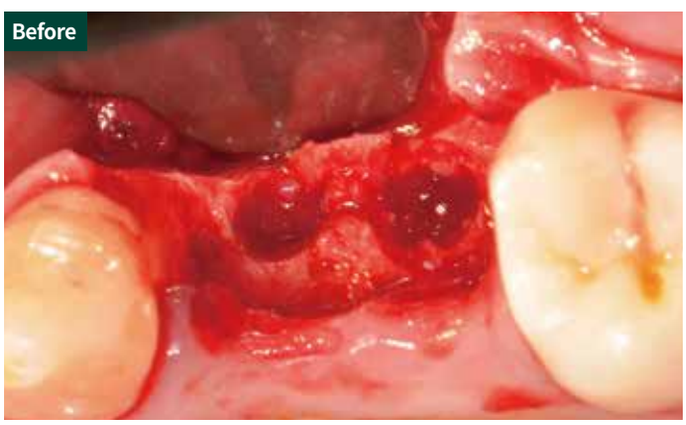
› After fixture removal, severe buccal dehiscence and poor soft tissue conditions allowed for only alveolar ridge preservation in the left premolar area. S1 bone graft was applied to the dehiscence defect, and a collagen membrane was used for coverage.

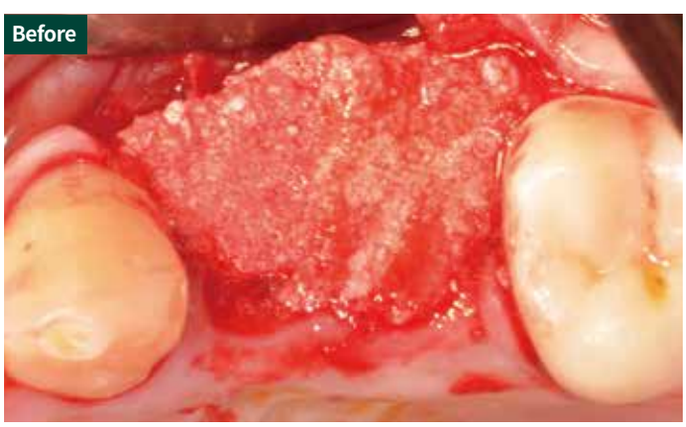
Conclusions

› Not only was a volumetric change found in the CT scan, but the clinical situation for implant placement was also acceptable. An additional bone graft was performed simultaneously with implant placement five months after ARP. Fine bone regeneration was observed in the histologic evaluation.

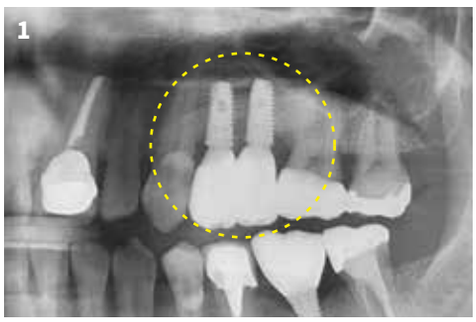






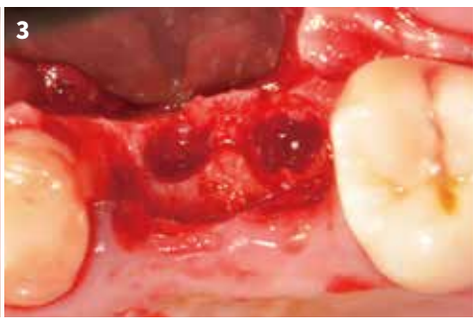


Treatment Steps

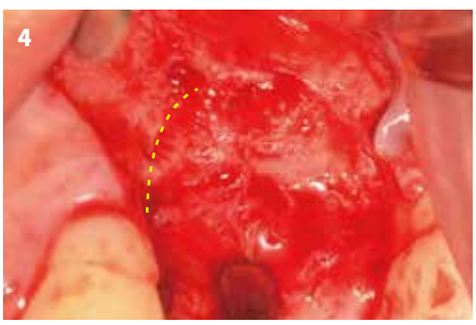


Preoperative x-ray

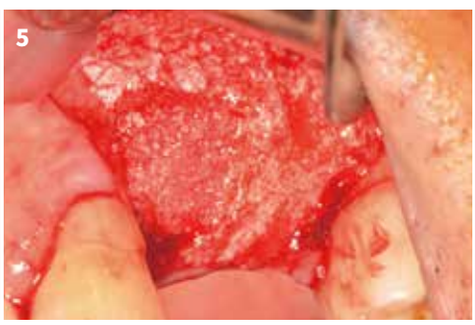
Peri-implantitis condition



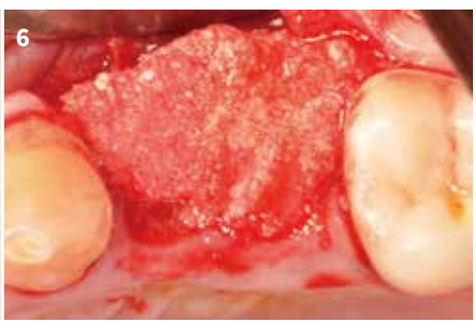
Defect after removal of the old fixture



Significant defect after removal of the old fixture



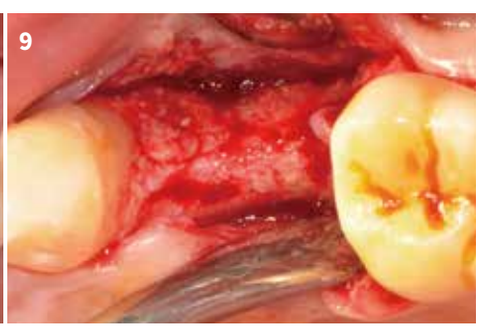
Application of S1 bone graft material



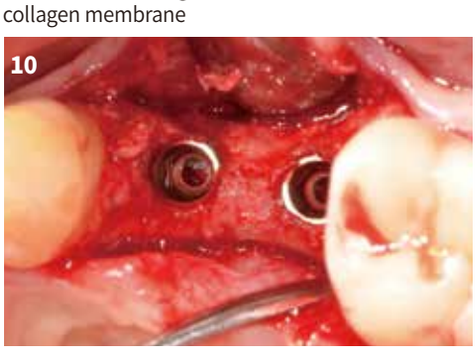
Application of S1 bone graft material

Bone covered with granulation tissue and a collagen membrane

Post-OP (5 months)



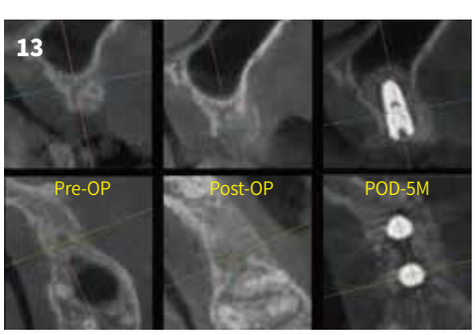
Post-OP (5 months)



Post OP (5 months), Implant placement

Post OP (5 months), Implant placement

Post OP (9 months), Prosthesis



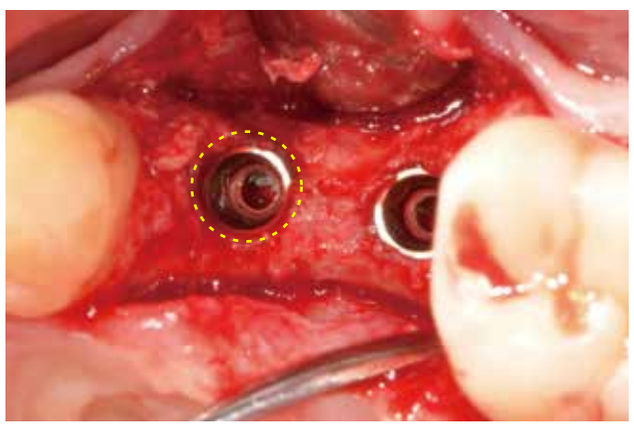
Alveolar bone changes on CBCT

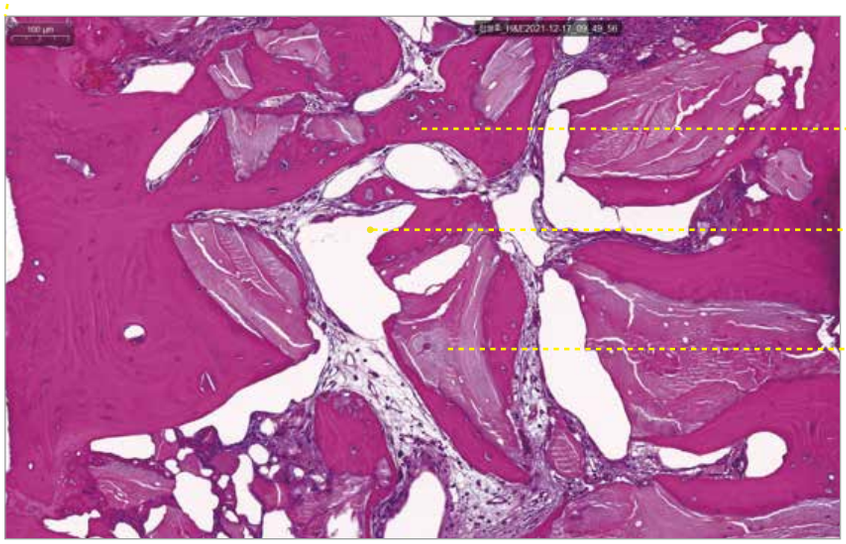
Biopsy time 5 months after using S1 bone graft material

Biopsy method Collected at a depth of 6 mm using a trephine bur from the implant placement area of #12 (universal system)

Findings **Although it was a large defect, fine bone regeneration was observed in the histologic evaluation**

› Hematoxylin & Eosin staining





Total Region of Interest Area		
	Area (mm^2)	Percent(%)
Bone graft area	1.47	26.77
New bone area	**1.46**	**26.64**
Others	2.55	46.59
Total bone area	2.93	53.41

CLINICAL CASE 3

Alveolar Ridge Preservation without Membrane

Dr. Chingu kim

Initial assesment A 47-year-old male patient has a floating tooth on the right mandibular canine with advanced apical periodontitis. Alveolar ridge preservation was required due to a two-wall extensive bony defect and poor soft tissue condition. A healing period of more than six months was expected before implant placement.

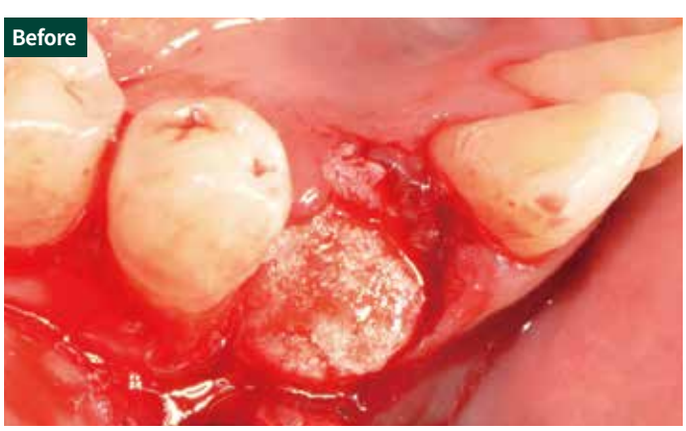
Products **S1 Bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

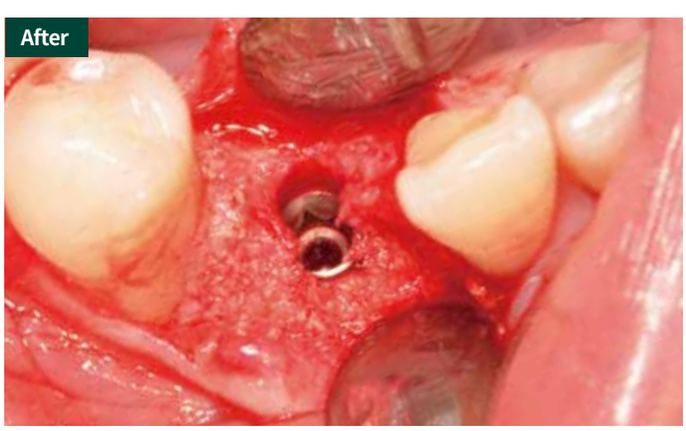
Objectives

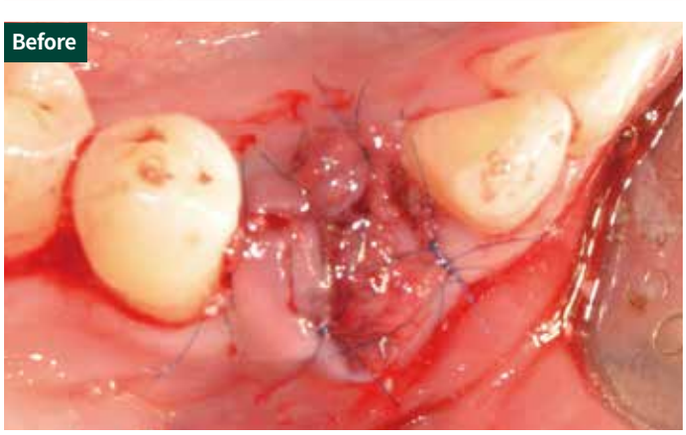
› After tooth extraction, the thick inflamed soft tissue was carefully peeled off from the underlying bone. S1 bone was then applied to the large defect and covered with granulation tissue, which served as a protective membrane for the graft material.

Conclusions

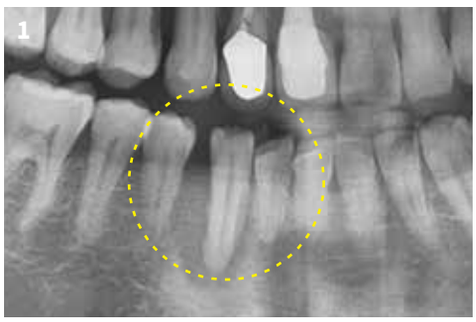
› For five months, the CT scans showed that the soft tissue and bony contours were well-preserved. However, despite histologic results indicating acceptable bone regeneration, the regenerated bone exhibited a soft quality. For implant placement in cases of 1-wall or 2-wall defects, a healing period of more than six months would be required.







Treatment Steps



Preoperative X-ray

Huge defect after tooth extraction

Application of S1 bone graft material

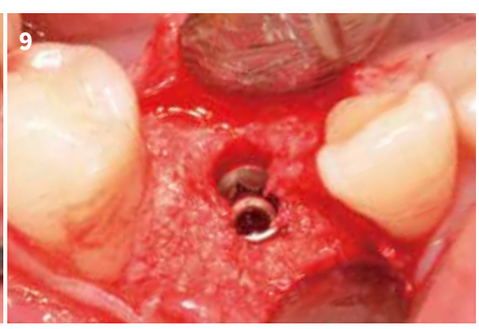
Bone covered with granulation tissue without a membrane

Post-OP (2 weeks)

Post-OP (6 weeks)

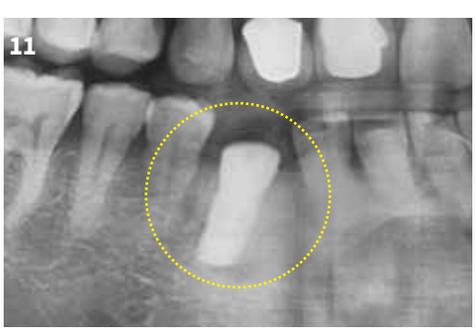
Post-OP (5 months)

Post-OP (5 months)

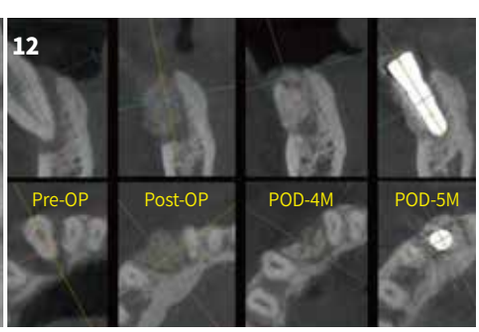


Post OP (5 months), Implant placement

Post OP (5 months), Implant placement



Post OP(5months)



Alveolar bone changes on CBCT

Post OP (8 months), Custom abutment

Post OP (8 months), Final prosthesis

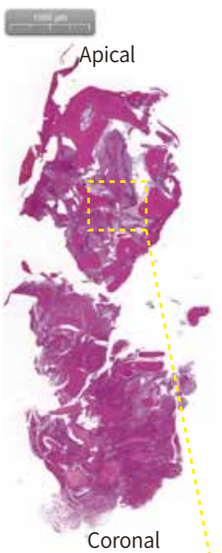
Post OP (9 months)

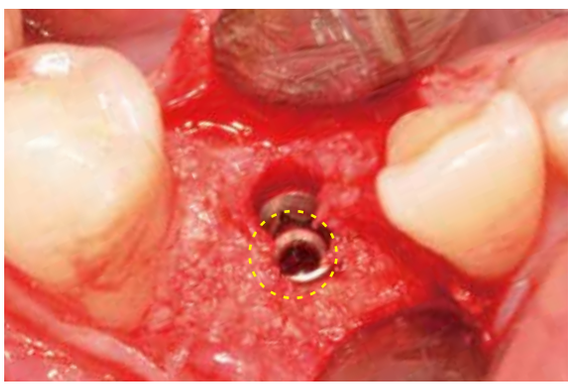
Biopsy time 5 months after using S1 bone graft material

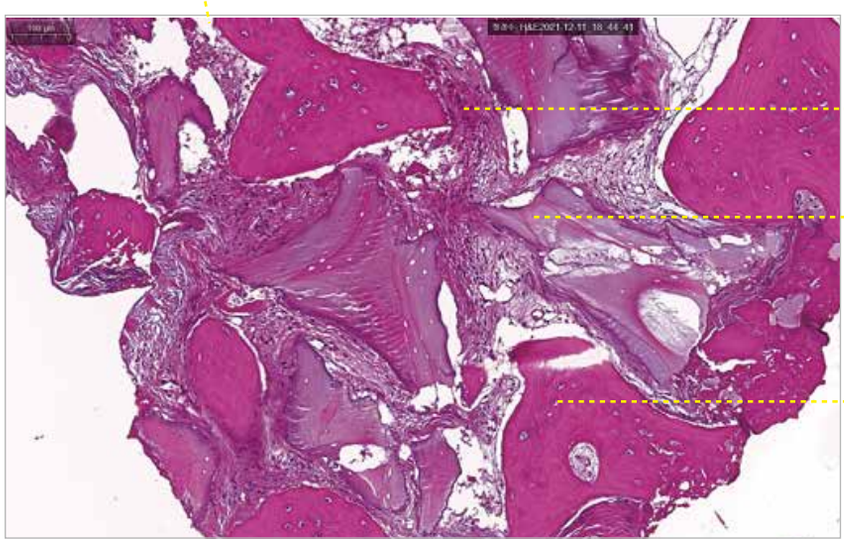
Biopsy method Collected at a depth of 6 mm using a trephine bur from the implant placement area of #27 (universal system)

Findings **In cases of 1-wall or 2-wall defects, a healing period of more than six months is required for implant placement. While the regenerated bone shows a soft quality, the histologic results are acceptable for implantation.**

› Hematoxylin & Eosin staining







Total Region of Interest Area		
	Area (mm^2)	**Percent(%)**
Bone graft area	1.21	16.00
New bone area	**1.52**	**20.16**
Others	4.835	63.83
Total bone area	2.73	36.17

CLINICAL CASE 4

Alveolar Ridge Preservation

Dr. Choong Noh

Initial assesment A patient came in for treatment of peri-implantitis affecting the mandibular first and second molars. The existing implant was removed, and inflammation was managed through curettage and guided bone regeneration surgery. Once the healing process is assessed, a new implant will be placed.

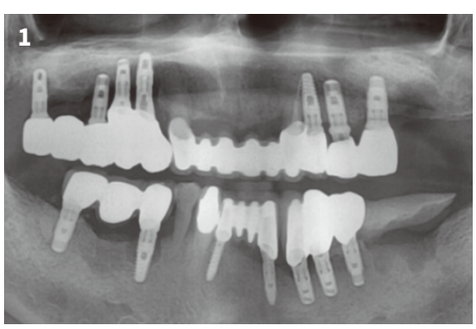
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

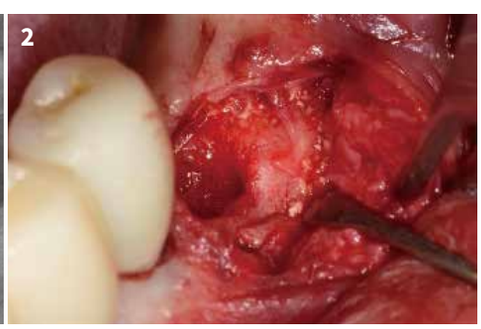
› When there is insufficient support space for implant placement due to the creation of a wide socket range after removing peripheral inflammatory tissue caused by peri-implantitis.
› On the day of GBR surgery, after soft tissue elevation, traces of the bone graft material used for the previous implant placement were observed.

Conclusions

› Six months after using the S1 bone graft material, the boundary between the S1 graft and the natural alveolar bone naturally connected,generating new bone.
› Biopsy results of the new bone formed at the implant placement site confirmed that osteocytes had developed around the graft material and connected to form mature bone.



Preoperative X-ray (#36, #37)



Implant removal and inflammation curettage

Application of S1 bone graft material

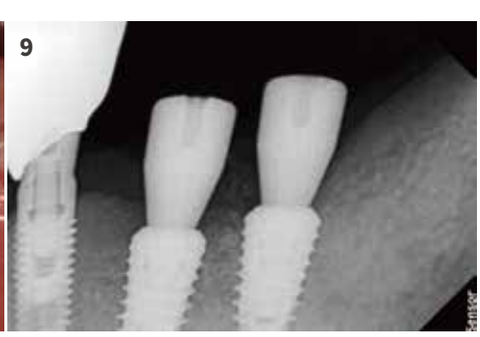
Application of S1 bone graft material

Intraoral photo taken 6 months after the application of S1 bone graft material

Incision of soft tissue for implant placement

Implant placement in newly formed bone

Suturing after attaching the healing abutment



X-ray taken 6 months after the application of S1 bone graft material and implant placement

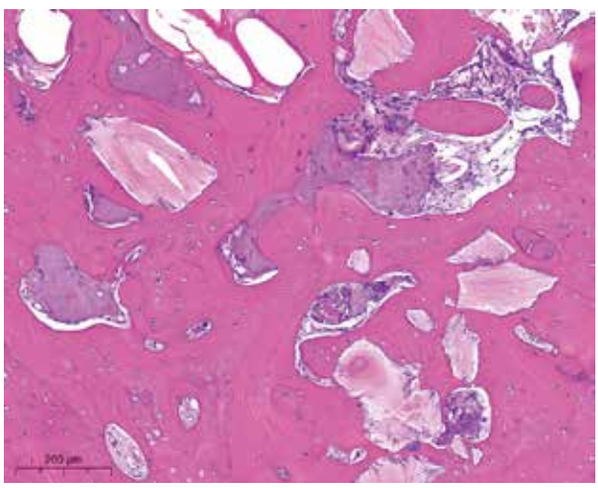
Biopsy time 6 months after using S1 bone graft material

Biopsy method Collected at a depth of 6 mm using a trephine bur from the implant placement area of #36

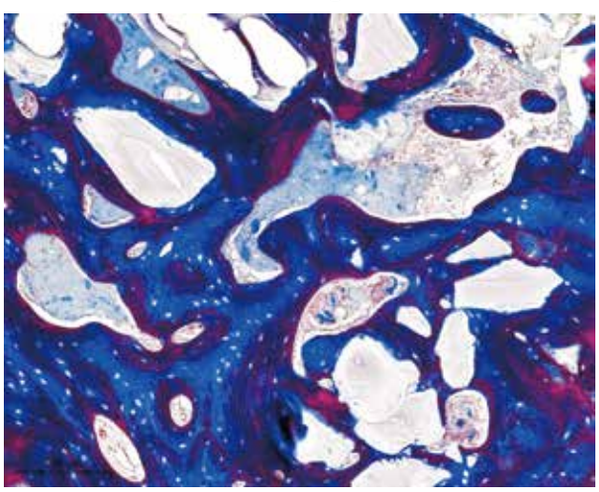
Findings

- **After 6 months, the bone formation rate was confirmed to be 60.29%, with most of it forming a network with mature bone.**
- **The graft material is confirmed to be safe, with no signs of inflammation or immune rejection.**
- **Osteogenesis occurred around the graft material, with uniform distribution of osteocytes observed, confirming the mature stage of ossification.**

› **Hematoxylin & Eosin staining**



› **Masson's Trichrome staining**



Total Region of Interest Area		
	Area (mm^2)	**Percent(%)**
Bone graft area	1.44	20.99
New bone area	**4.13**	**60.29**
Others	1.28	18.72
Total bone area	5.57	81.28

※ Biopsy analysis : OBen tissue analysis

CLINICAL CASE 5

Sinus Floor Elevation (Lateral Approach)

Dr. Moon Seop Yum

Initial assesment A patient who had been using dentures for a long time visited for implant placement. Vertical and horizontal bone augmentation was performed at the base of the maxillary sinus using a lateral approach, as there was only 1 mm of residual bone in the maxillary left posterior region near the sinus.

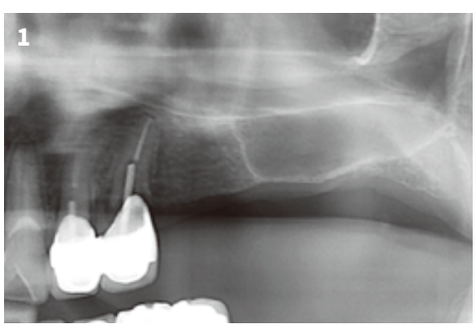
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› Insufficient condition with only 1mm of vertical residual bone in the upper left molar area
› Access to the maxillary sinus by creating a window through a lateral approach
› Implanting S1 bone graft material after sinus elevation

Conclusions

› This case demonstrates the effectiveness of using S1 bone graft material to create a stable space by lifting the sinus floor membrane.
› Hard bone formation was observed, with noticeable resistance when using Trephine burs to collect a biopsy from the S1 bone graft area.
› Biopsy results indicated that new bone had formed well around the graft material, with mature bone tissue evident.



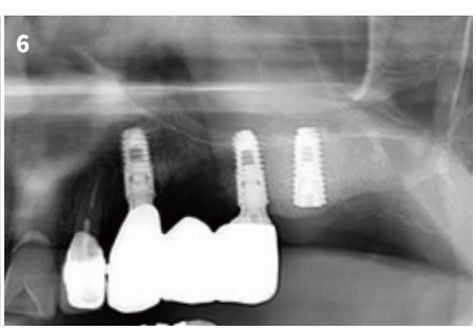
Preoperative X-ray

Intraoral photo taken before the grafting procedure in the left maxilla.

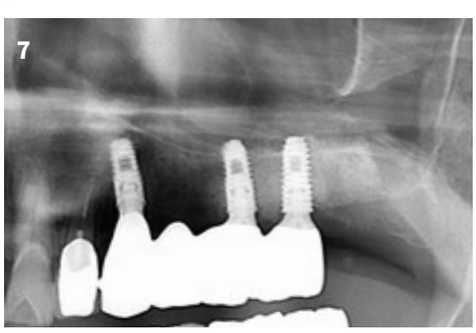
Application of S1 bone graft material from the buccal side of the remaining bone in left maxilla

X-ray taken immediately after applying the S1 bone graft material

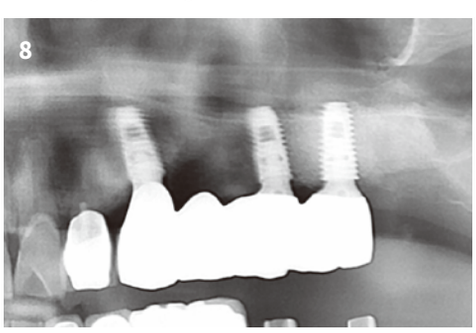
Implant placement in the #26 area four months after using S1 bone graft material



Biopsy request for posterior region of #26 at 11 months after using S1



Final prosthesis



X-ray taken 26 months later

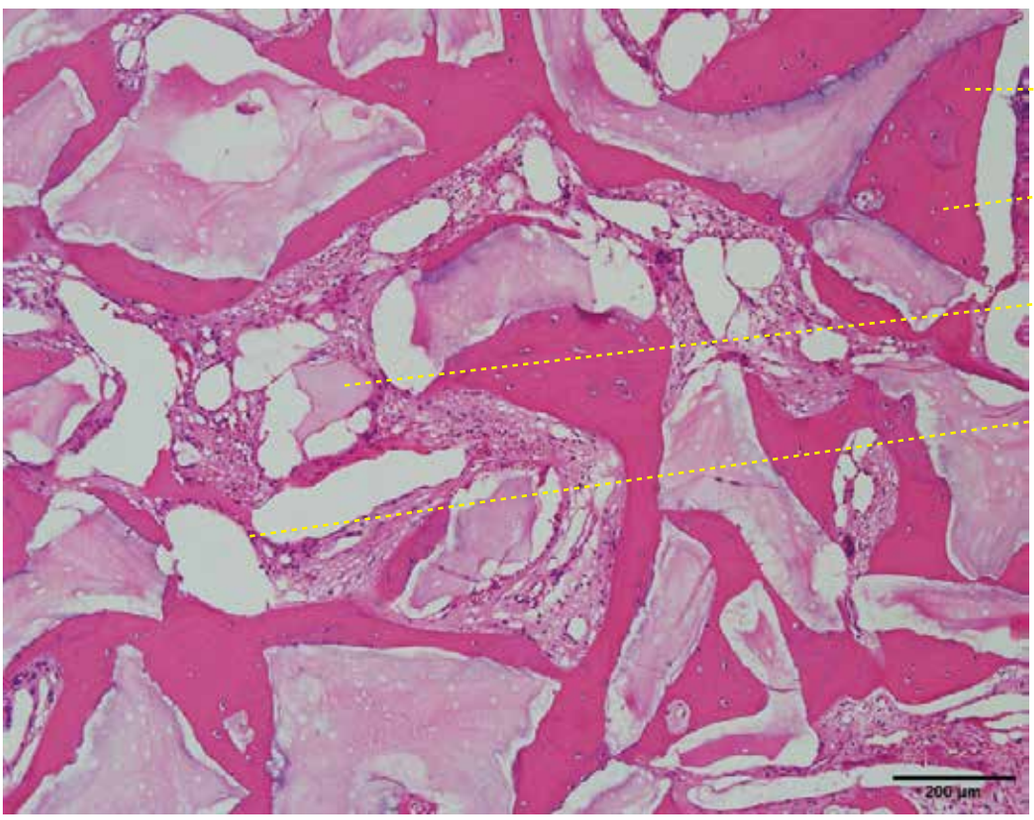
After 33 months of using S1 bone graft material

Biopsy time 11 months of using S1 bone graft material

Biopsy method Collected a sample from the posterior side of the implant placement area at a depth of 6 mm using a trephine bur

Findings
- **The graft material is considered to be safe, with no signs of inflammation or immune rejection**
- **High-quality bone has formed uniformly from the host bone to the maxillary sinus mucosa**
- **Most of the new bone is integrated with the graft material, creating a very dense network**

› Hematoxylin & Eosin staining



› Comparison of S1 and Product 'B' for bone formation rate

	S1	Product 'B'
Graft area	Sinus	Sinus
Observation period	11 months	12 months
Bone formation rate	**28.22 %**	26.60 %

※ Biopsy analysis : Knotus, Tissue analysis by Wonkwang University

Reference

(1) Son WK, Shin SY, Yang SM, Kye SB. Maxillary sinus floor augmentation with anorganic bovine bone: Histologic evaluation in humans. J Korean Acad Periodontol. 2009;39(1):95-102.

(2) Lee YM, Shin SY, Kim JY et al. Bone reaction to bovine hydroxyapatite for maxillary sinus floor augmentation: Histologic results in humans. Int J Periodontics Restorative Dent. 2006;26:471-481.

CLINICAL CASE 6

Vertical & Horizontal Bone Augmentation

Dr. Yong Jin Kim

Initial assesment The situation required extracting the entire maxillary tooth and removing inflamed tissue due to periodontitis. Because extensive horizontal and vertical bone reconstruction of the maxillary alveolar bone was needed, implant placement was planned for 4 months after the bone augmentation.

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (Non-absorbable) □ No

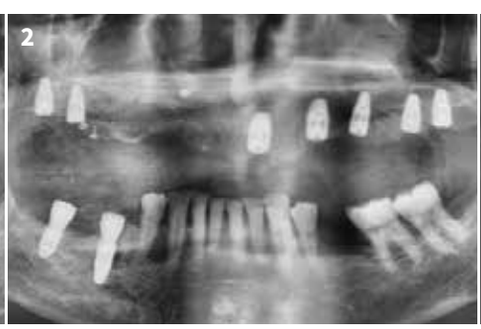
Objectives

› Alveolar bone loss due to periodontitis had progressed extensively, resulting in large bone defects in the maxillary right canine and first premolar areas.
› Horizontal and vertical guided bone augmentation was performed using S1 bone graft material and a non-absorbable membrane.

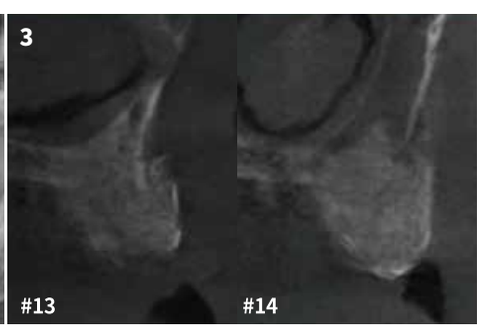
Conclusions

› Using a widely performed guided bone regeneration technique, the biopsy revealed excellent ossification and bone quality, with no visible boundary between the bone graft and the new bone.
› After elevating the soft tissue, it was found that 4 months after using the bone graft material, there was sufficient bone quality and width for implant placement.

Preoperative X-ray



Postoperative X-ray taken after using S1 bone graft material



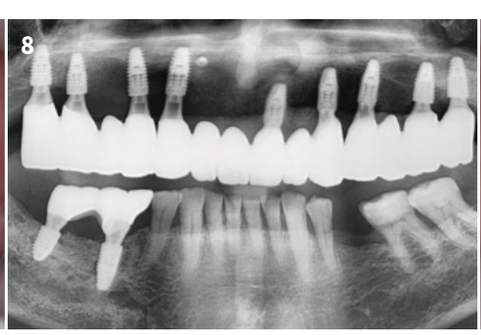
CBCT taken after using S1 bone graft material


Intraoral photo of the lateral right maxilla taken 3 months later

Intraoral photo taken 3 months later

Soft tissue incision for implant placement after 4 months

Abutment connection for the final prosthetics



X-ray taken after the final prosthetics

Final prosthetics

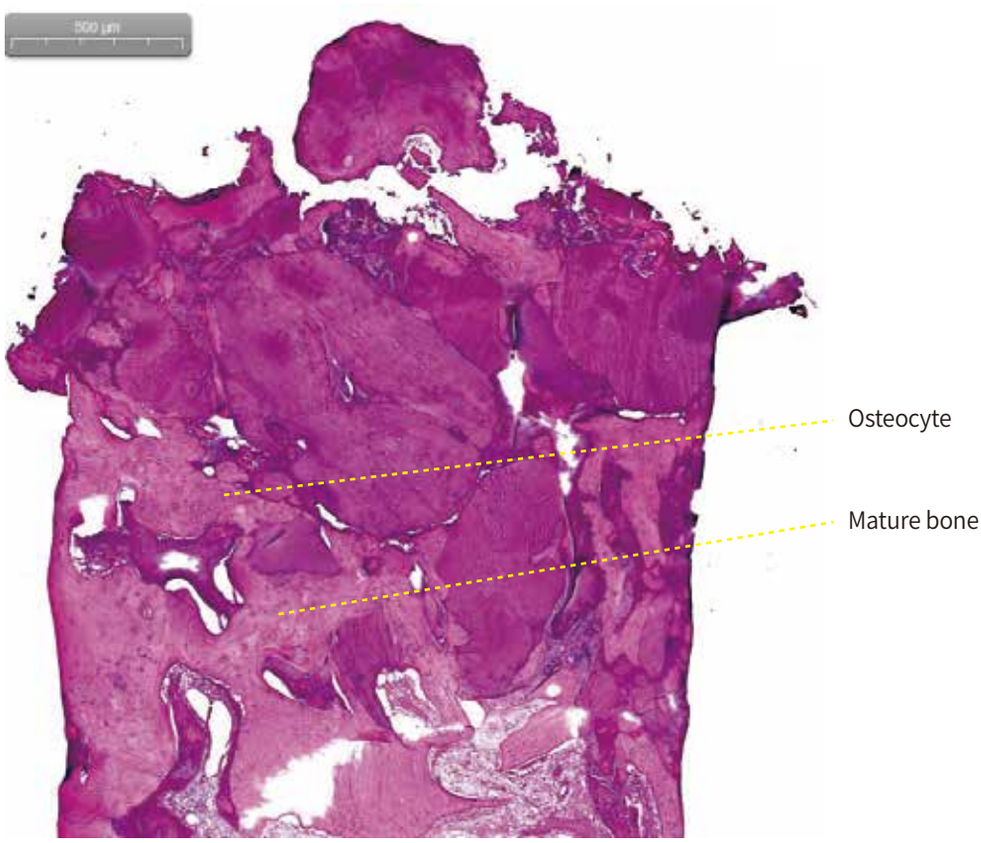
Biopsy time 4 months of using S1 bone graft material

Biopsy method Collected at a depth of 6 mm using a trephine bur from the implant placement area of #36

Findings

- **Ossification was outstanding, with no visible boundary between the bone graft material and the new bone, and the bone quality was high.**
- **Mature ossification has been confirmed, with osteoblasts observed in the bone graft material, indicating a stage beyond the initial bone formation phase where osteoblasts are actively involved.**
- **The graft material is considered to be safe, showing no signs of inflammation or immune rejection.**
- **Bone formation is very successful, with a dense connection between the graft material and the new bone, reflecting a strong affinity between them.**

› Hematoxylin & Eosin staining



› Comparison of S1 and Product 'B' for bone formation rate

	S1	Product 'B'
Graft area	Alveolar ridge	Alveolar ridge
Observation period	4 months	6 months
Bone formation rate	**25.23 %**	18.3 %

※ Biopsy analysis : OBen tissue analysis

Reference

(1) Lee YM, Shin SY, Kim JY et al. Bone reaction to bovine hydroxyapatite for maxillary sinus floor augmentation: Histologic results in humans. Int J Periodontics Restorative Dent. 2006;26:471-481.

(2) Nicola U. Zitzmann, Dr Med Dent* Peter Schärer, Prof Dr Med Dent, MS** Carlo P. Marinello, Prof Dr Med Dent, MS*** Peter Schüpbach, Dr Sc Nat, PhD**** Tord Berglundh, DMD, PhD*****

(3) Zitzmann NU, Schärer P, Marinello CP, Schüpbach P, Berglundh T. Alveolar ridge augmentation with Bio-Oss: a histologic study in humans. Int J Periodontics Restorative Dent. 2001 Jun;21(3):288-95. PMID: 11490406.

CLINICAL CASE 7

Regeneration of the Odontogenic Cyst Area

Dr. Yong Jin Kim

Initial assesment To reconstruct the bone defect caused by an inflammatory cyst at the root of the mandibular right first molar, guided bone reconstruction surgery using S1 bone graft material will be performed first. Implant placement will follow after confirming bone tissue formation.

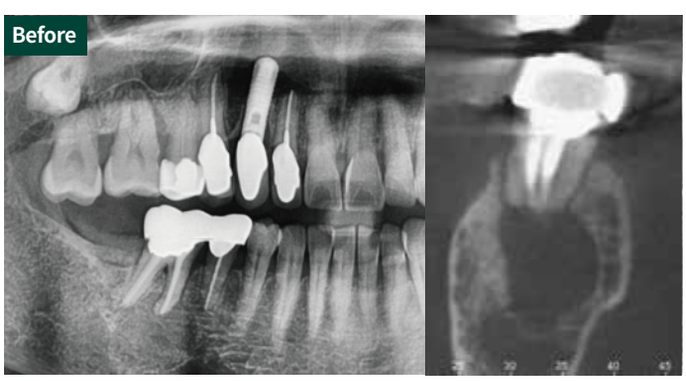
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

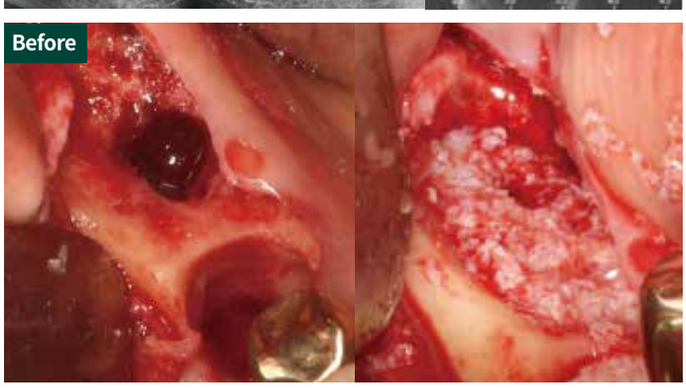
Objectives

› Implant placement is planned for the right mandibular first and second molars
› A large cyst and inflamed tissue were observed beneath the apex of the first molar
› Implant placement will proceed after extraction and guided bone reconstruction in the affected area

Conclusions

› Three months after using S1 bone graft material, a dense new bone formation was observed in the radiographs
› Biopsy results from the implant placement site confirmed successful new bone induction
› Healthy new bone, including blood vessels, has formed even in areas with large defects





Treatment Steps

Preoperative X-ray (before the extraction of #46)

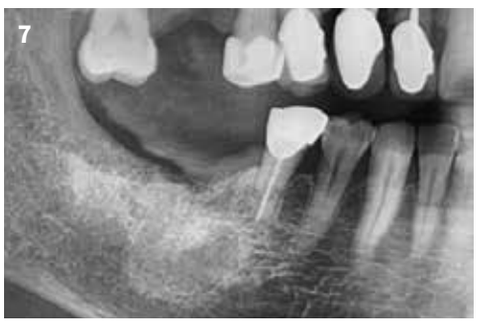
X-ray taken after the extraction of the mandibular right first molar

Intraoral photo taken after the extraction of the mandibular right first molar

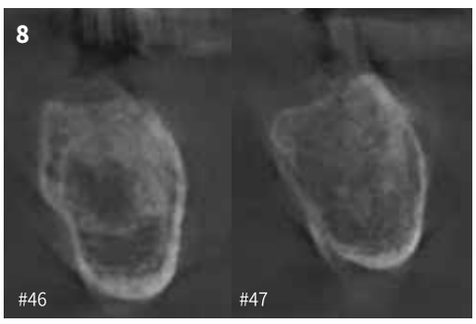
Residual bone condition after elevating the soft tissue flap

Application of S1 bone graft material (#46)

Application of S1 bone graft material (#47)



X-ray taken 3 months after the application of S1 bone graft material



Postoperative CBCT cross-section

Implant placement 4 months after the use of S1 bone graft material

Postoperative intraoral photo after the final prosthetics

Final prosthetics (#46, #47)

X-ray after the final prosthetics

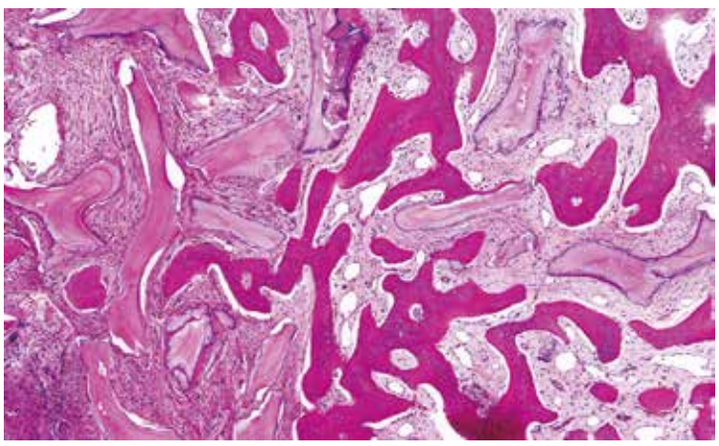
Biopsy time 4 months after using S1 bone graft material

Biopsy method Collected at a depth of 6mm using a trephine bur from the implant placement area of #36

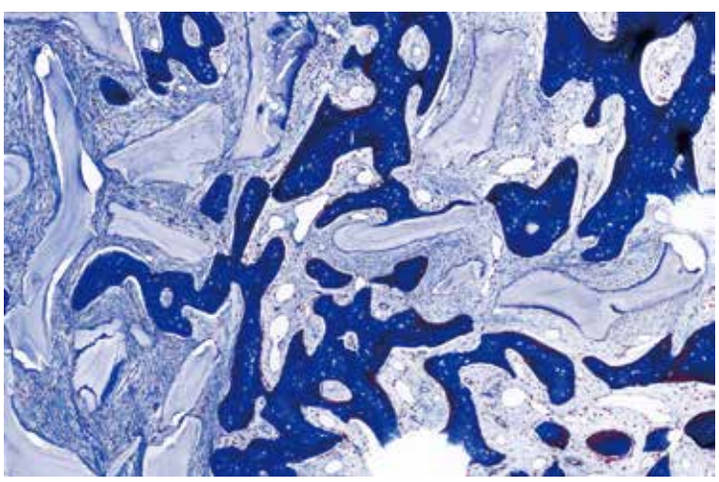
Findings

- **22.3% of the new bone was preserved in the large defect socket area, which is a significant finding**
- **A substantial amount of new bone formed between the safe graft material and the bone graft material, with no notable inflammatory reaction**
- **Osseointegration anticipated to be excellent**
- **Forming a pattern indicating very healthy new bone with blood vessels**

› **Hematoxylin & Eosin staining**



› **Masson's Trichrome staining**



Total Region of Interest Area		
	Area (mm^2)	**Percent(%)**
Bone graft area	2.10	11.46
New bone area	**4.09**	**22.34**
Others	12.13	66.18
Total bone area	6.19	33.81

※ Biopsy analysis : OBen tissue analysis

CLINICAL CASE 8

Horizontal Alveolar Bone Augmentation

Dr. Dong-Wook Chang

Initial assesment A 63-year-old woman visited the dental clinic because of the discomfort with her dentures and expressed a desire for implants.

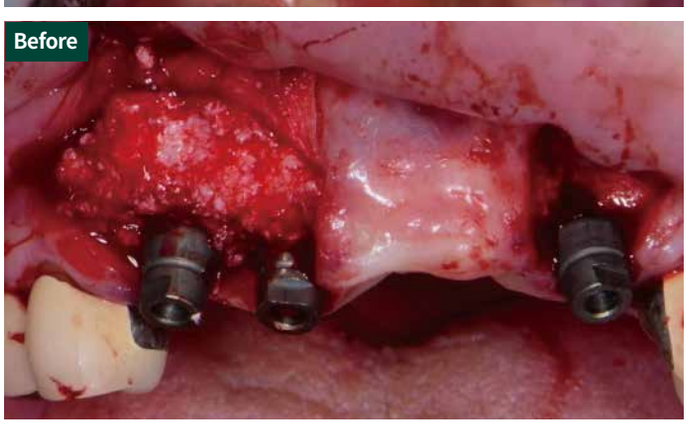
Products **S1 Bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes □ No

Objectives

› Extraction of the remaining canine teeth and implantation of implants in both the anterior and posterior areas
› Bone grafting was performed due to resorption on the labial side of the anterior teeth

Conclusions

› Grafting S1 into the thin labial of the anterior teeth, followed by examining the augmented alveolar bone and healed soft tissue after 3 months using
› CBCT

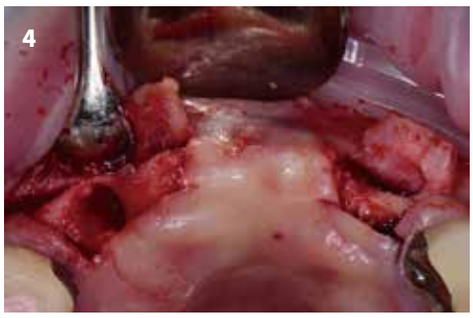


Treatment Steps

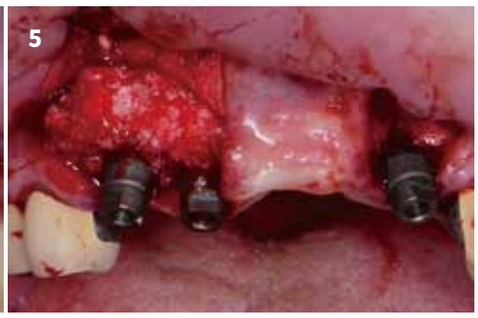
Preoperative panoramic radiograph

Preoperative intraoral photo

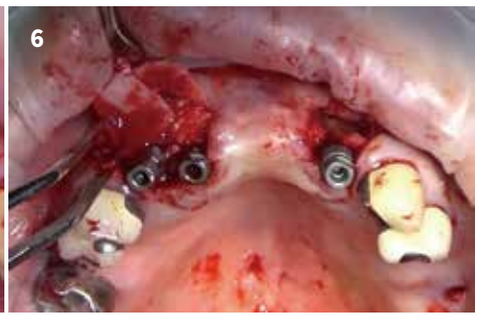
Preoperative CBCT



Extraction of the remaining upper right canine tooth and partial incision of the anterior tooth

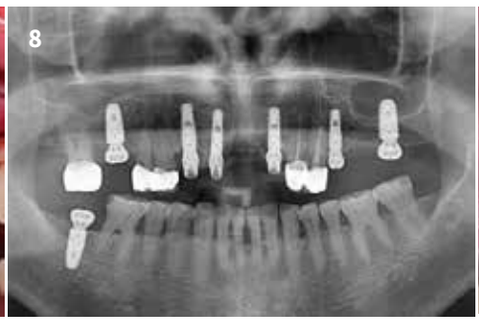


Transplantation of S1 bone graft material



Use of COLLA Membrane

Suture



Panoramic radiograph taken 3 months after surgery

Intraoral photograph showing soft tissue healing 3 months after surgery

Final panoramic radiograph

Final prosthesis

Postoperative CBCT

CLINICAL CASE 9

Minor Bone Augmentation without Membrane

Dr. Chingu kim

Initial assesment The edentulous right maxillary premolar area of a 67-year-old female patient did not have sufficient horizontal volume for implant placement. An onlay bone graft was required, but the patient opted against extensive GBR due to diabetes.

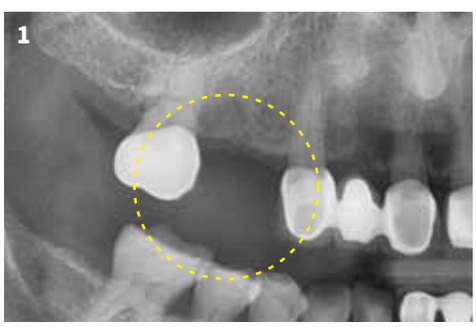
Products **S1 Bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

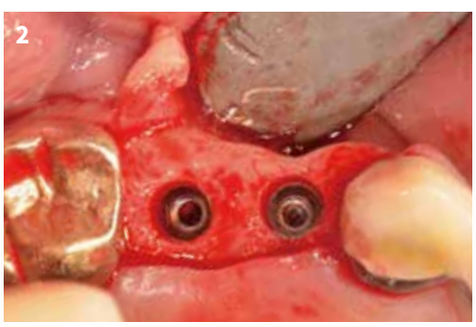
› After implant placement, a buccal fenestration defect was discovered on the first premolar implant. S1 bone was applied to the buccal defect without the use of a membrane or additional fixation for space maintenance. Minor flap advancement was performed, and primary closure was achieved using only 5-0 nylon sutures.

Conclusions

› Abundant bone regeneration was observed after three months, with the regenerated bone even covering the cover screws. The volume of regenerated buccal bone remained stable over 8 months.

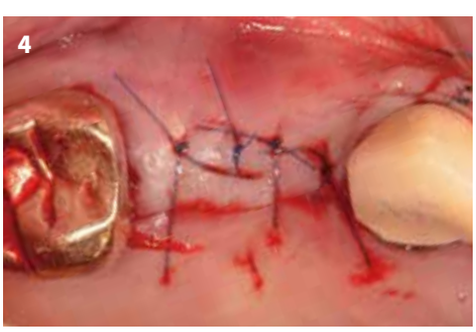


Preoperative X-ray



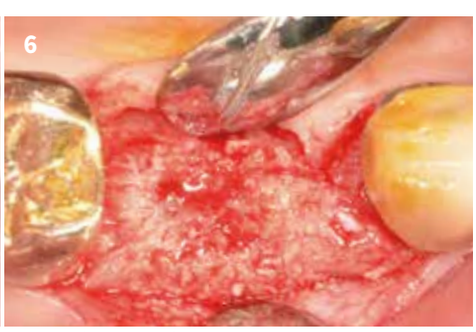
Implant placement

Buccal fenestration defect



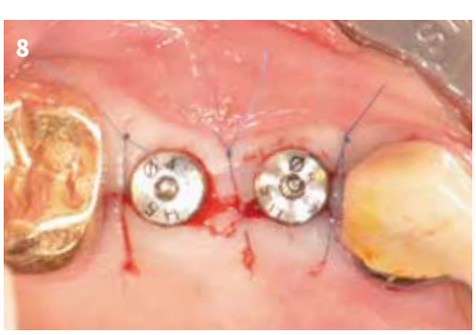
Suture

Post OP (3 weeks)



Post OP (3 months), 2nd OP

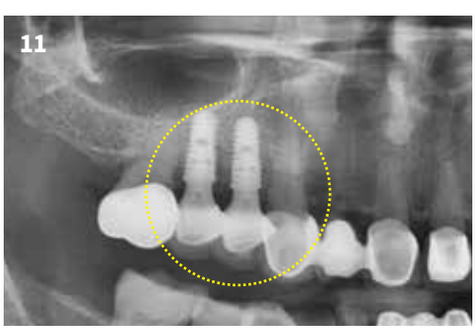
Post OP (3 months), 2nd OP



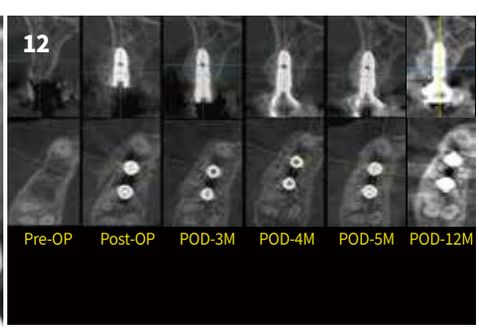
Post OP (3 months), 2nd OP

Post OP (4 months)

Post OP(4 months), Final prosthesis



Post OP (4 months), Final prosthesis



Alveolar bone changes on CBCT

CLINICAL CASE 10

Moldable Augmentation in Anterior Area

Dr. Ho Yeul Jang

Initial assesment A 66-year-old male patient presented with complaints of a strong odor around his maxillary anterior prosthesis (a 4-unit bridge) and expressed a desire for implant treatment. Severe alveolar bone contraction had progressed due to root inflammation, with a residual buccal bone width of 3 mm observed on CBCT.

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› Extensive alveolar bone augmentation is needed due to the buccal width of the alveolar bone being only 3mm, necessitating the extraction of the remaining maxillary teeth (#11, #21, #22) and the removal of inflamed granulation tissue.

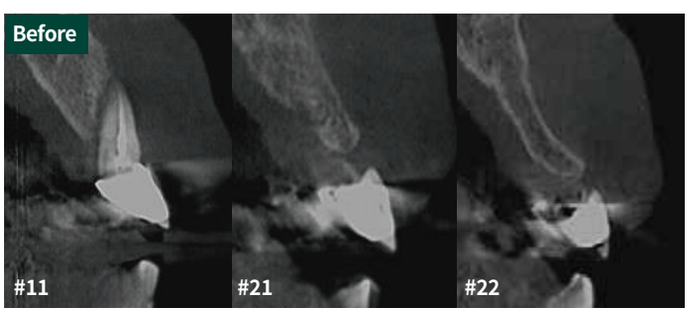
› Upon visual inspection, a defect in the form of fenestration and dehiscence of the alveolar bone was observed after soft tissue elevation.

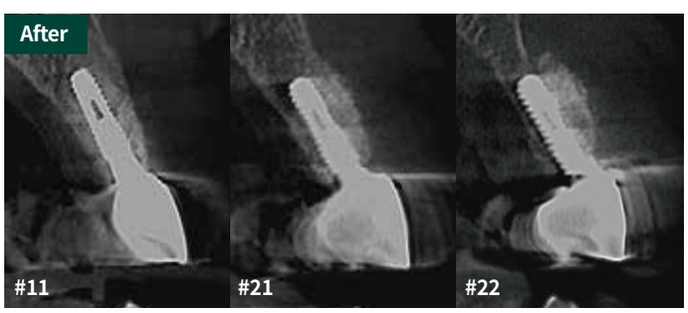
Conclusions

› Good healing of the soft tissue around the bone graft material was observed, despite the wide surgical area.

› CBCT revealed that the new bone around the implant is naturally integrated with the existing alveolar bone.

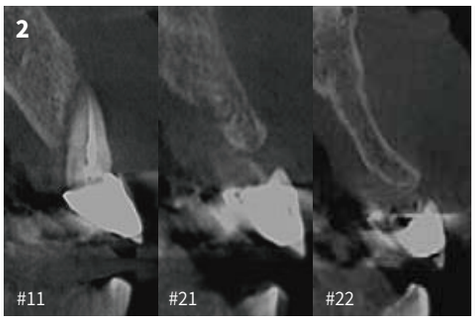
› Although no membrane was used, the position of the bone graft material remained stable, and the bone augmentation surgery was performed successfully and with relative ease.





Treatment Steps

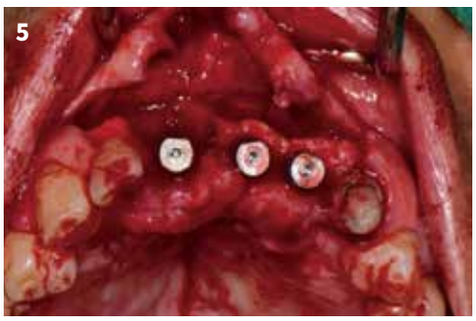
Preoperative panoramic radiograph



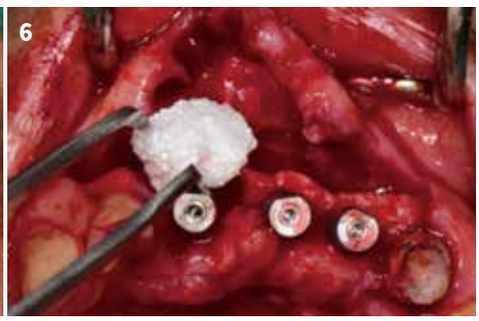
Preoperative CBCT

Preoperative intraoral photo

Implant placement at positions #11, #21, and #22

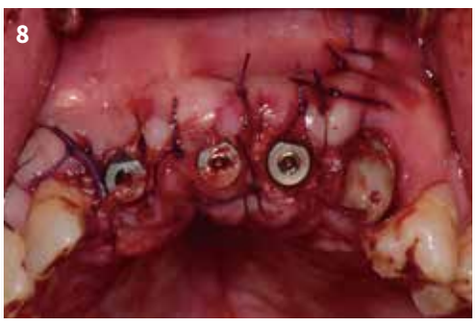


Dehiscence defect and significant bone loss



Application of S1 bone graft material

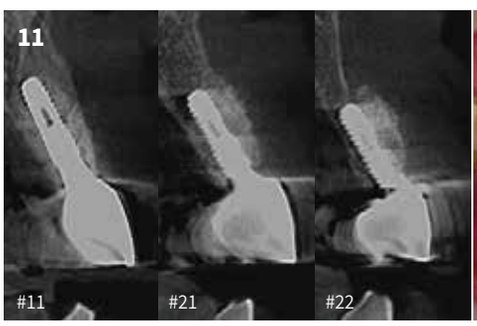
Application of S1 bone graft material



Suture

6 weeks after grafting S1

X-ray taken after final prosthetics



CBCT taken after final prosthetics

Final prosthetics

CLINICAL CASE 11

Alveolar Ridge Preservation

Dr. Ho Yeul Jang

Initial assesment Visited for implant placement in the tooth loss area, with a plan for vertical bone augmentation using bone graft material simultaneously with the implant placement in the defect of the mandibular left first molar

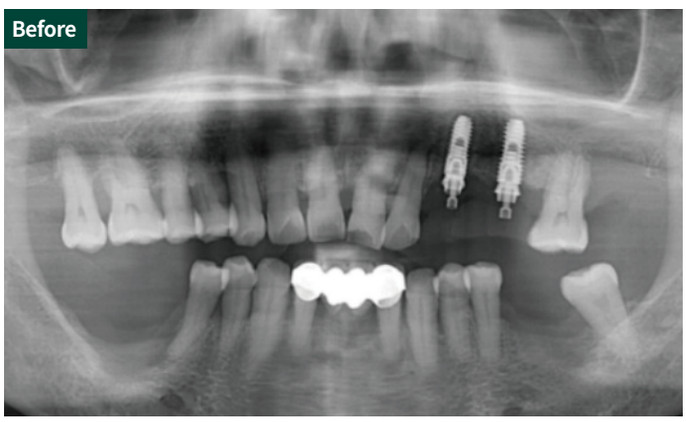
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

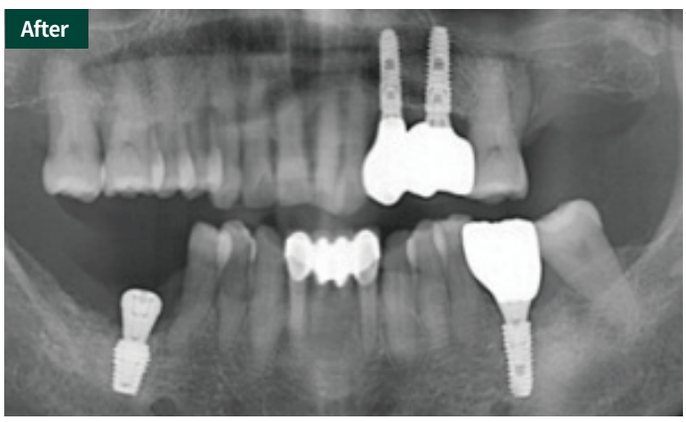
Objectives

› The defect area at #36 displays both vertical and horizontal alveolar resorption.
› The plan is to perform vertical bone augmentation simultaneously with implant placement to address the discrepancy between the adjacent teeth and the excessive bone loss.

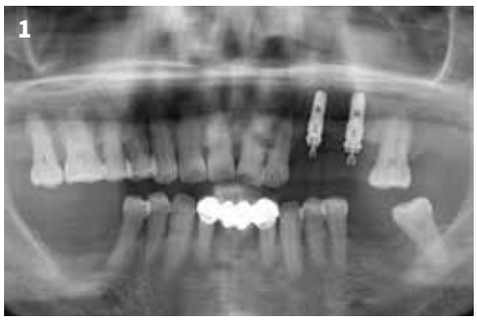
Conclusions

› The vertically augmented alveolar bone around the #36 implant is identified by comparing preoperative and postoperative X-rays taken three months after placing the final prosthesis.
› Because of the successful bone and soft tissue augmentation, a final prosthesis was fabricated that aligns well with the adjacent teeth, which is expected to benefit future periodontal management.





Treatment Steps



Preoperative X-ray

Preoperative intraoral photo

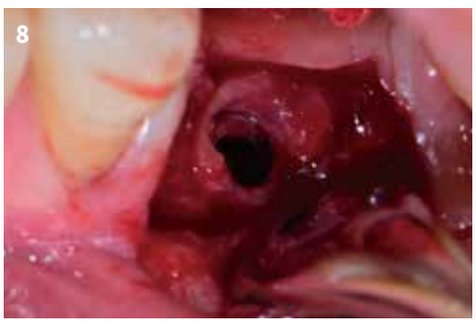
Implant placement following soft tissue flap elevation and inflammation curettage

Application of S1 bone graft material to the implant bone loss area

Vertical and horizontal bone augmentation using S1

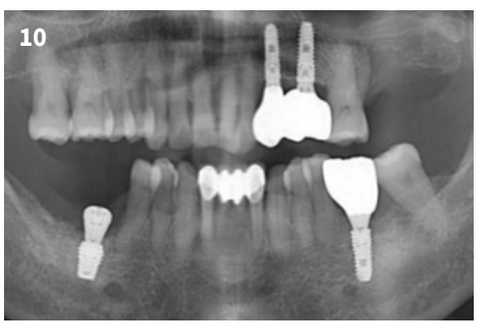
Postoperative X-ray

10 weeks after the surgery



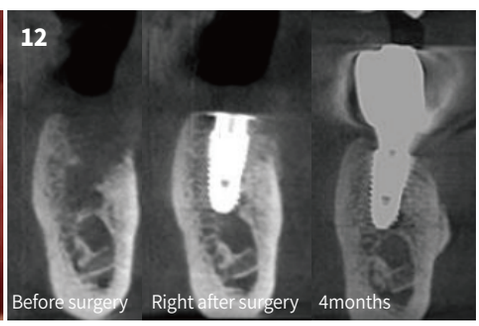
Observation of new bone formation during the second surgery, 10 weeks after the initial procedure

Abutment connection for tooth restoration



Final prosthetics 3 months after S1 grafting

Final prosthetics 3 months after S1 grafting



Alveolar bone changes on CBCT

CLINICAL CASE 12

Periodontal Defect Management

Dr. Chingu kim

Initial assesment Advanced periodontal disease was observed in the left mandibular molar, along with a buccal bone defect, in a 57-year-old patient

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› After removing the inflammatory granulation tissue, destruction of the alveolar bone connected to the buccal side of the two molars was observed, along with a large, puddle-shaped defect around the mesial root of the second molar. It is planned to use only S1 bone graft material in the defect area, where membrane placement is challenging.

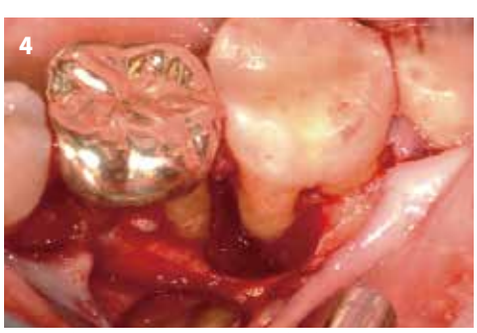
Conclusions

› Although no membrane was used, the volume of the bone graft material was well-maintained, and new bone formation was evident on the CT scan.
› New bone formation was observed as radiopacity on the CBCT, and after two months, it had integrated with the surrounding bone tissue.

Preoperative X-ray

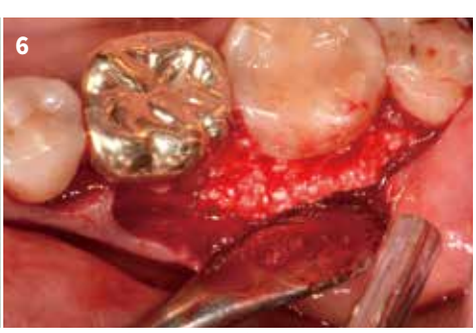
Flap operation

Inflammation curettage



Defect following the removal of inflamed tissue

Ready-to-use S1 bone graft material



Application of S1 bone graft material

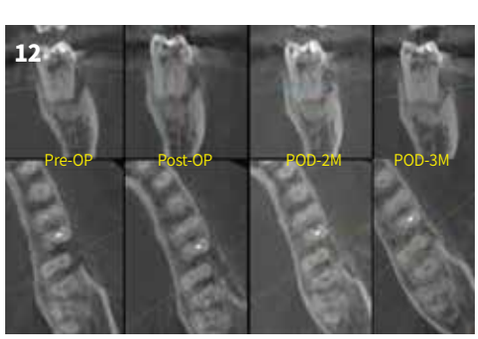
Application of S1 bone graft material

Suture

Post OP

Post OP (3 months)

Post OP (3 months)



Alveolar bone changes on CBCT

CLINICAL CASE 13

Socket Management in Posterior Area

Dr. Moon Seop Yum

Initial assesment A patient with severe periodontitis in the maxillary left first molar had minimal or no remaining bone at the site for implant placement. Bone augmentation was performed in the tooth extraction area.

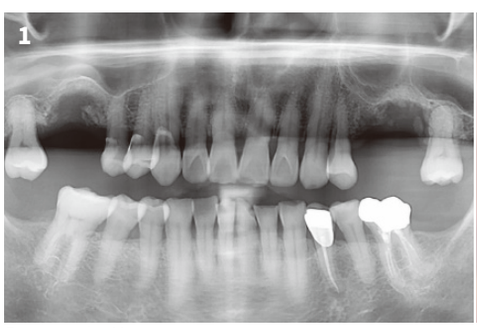
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (PRF) ☐ No

Objectives

› Alveolar bone condition after extraction of the maxillary first molar
› Assessment of the extraction site and defect area following soft tissue elevation
› Hydration of S1 with PRF followed by application of PRF membrane

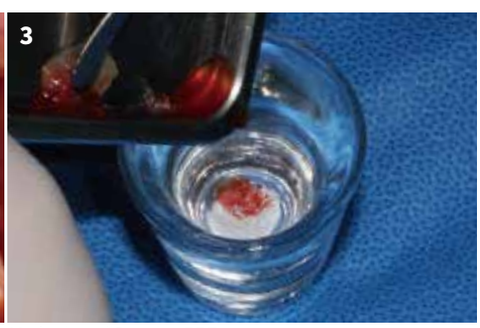
Conclusions

› Despite the large defect area, the shape was well maintained without a membrane, and new bone formed effectively.
› Excellent results were achieved using only residual bone and S1 graft material, without the need for maxillary sinus elevation.
› Bone formation was successful, with the height of the marginal bone around the implant harmonizing well with the adjacent teeth.



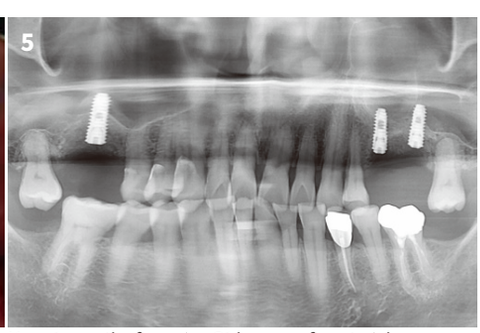
Preoperative X-ray

Preoperative intraoral photo

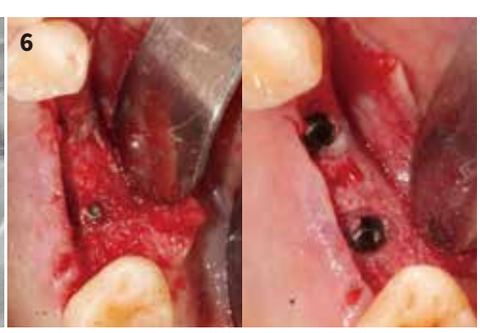


Hydration of S1 using PRF

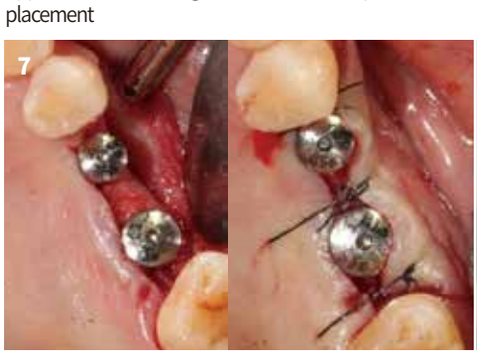
Application of S1 bone graft material after implant placement



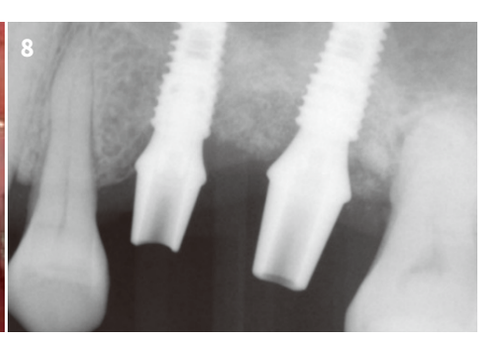
X-ray 1 month after using S1 bone graft material



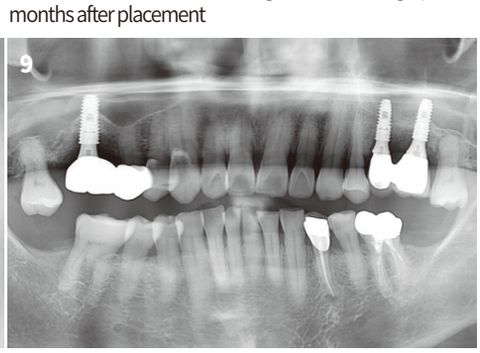
Bone formation observed during the second surgery, 7 months after placement



Abutment placement before tooth restoration



X-ray taken after final prosthetics



X-ray taken 10 months after using S1 bone graft material

After several months of using S1 bone graft material

CLINICAL CASE 14

Dehiscence Defect in Anterior Area

Dr. Moon Seop Yum

Initial assesment Horizontal bone augmentation surgery and implant placement were planned after extracting the maxillary left and right lateral incisors, with a remaining net lingual width of 2.8mm

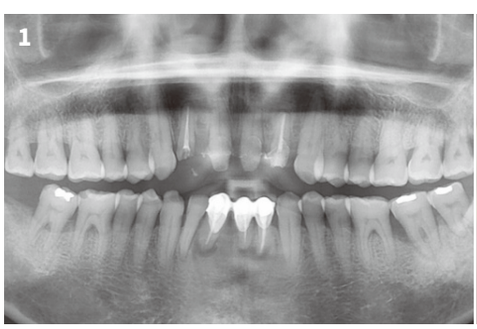
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› Extraction of the maxillary left and right lateral incisors due to apical inflammation
› Horizontal bone augmentation was performed, with the remaining bone having a lingual width of 2.8 mm
› S1 graft material was applied after placing implants with a diameter of 3.5mm

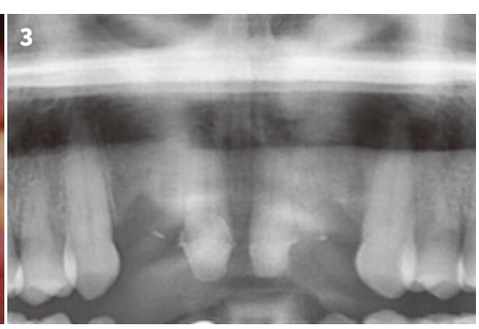
Conclusions

› Despite the insufficient bone width and extensive range of the defect area, the desired shape was achieved using S1 bone graft material, and the graft material remained stably positioned.
› The S1 bone graft material maintained its position without the use of a membrane, promoting new bone regeneration.
› The periodontal tissue in the S1 graft area is aesthetically pleasing and healed stably.



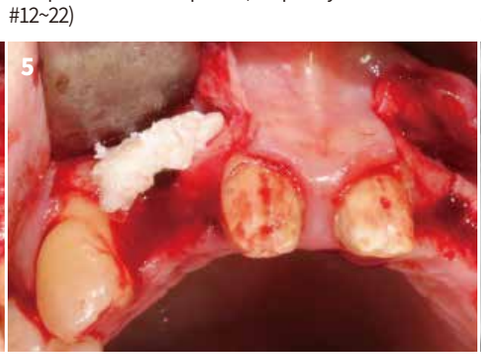
Preoperative X-ray

Preoperative intraoral photo (temporary crown on #12~22)

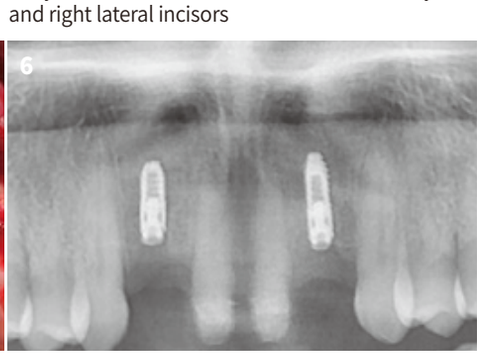


X-ray taken after the extraction of the maxillary left and right lateral incisors

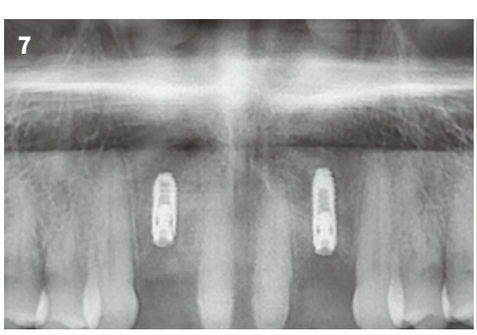
Bone loss at the site of the maxillary right lateral incisor



Molding S1 bone graft material

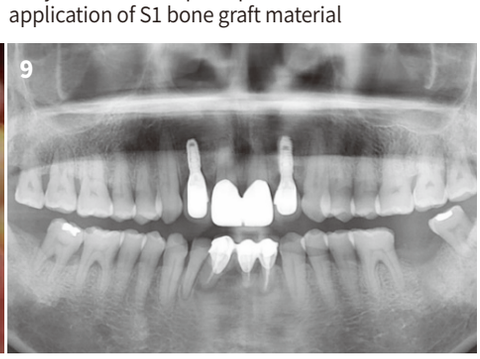


X-ray taken after implant placement and the application of S1 bone graft material



Bone formation pattern 4 months after using S1 bone graft material

Final prosthetics



X-ray taken 11 months after using S1 bone graft material

CLINICAL CASE 15

Open Socket Management in Posterior Area

Dr. Ho Yeul Jang

Initial assesment Periodontitis in the maxillary right first and second premolar and first molar areas has progressed over a long period with inflammation, affecting the surrounding alveolar bone and significant bone loss observed on CBCT. The patient is seeking implant treatment.

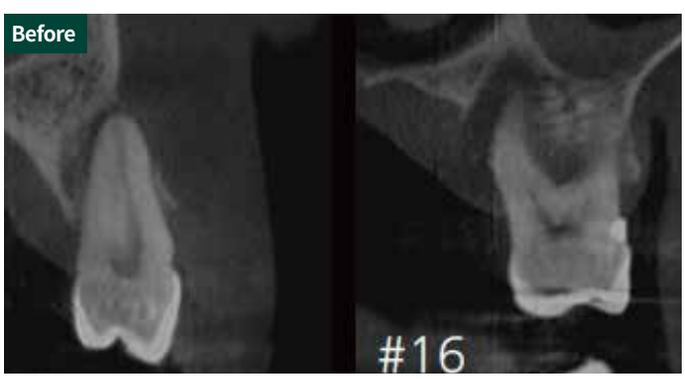
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

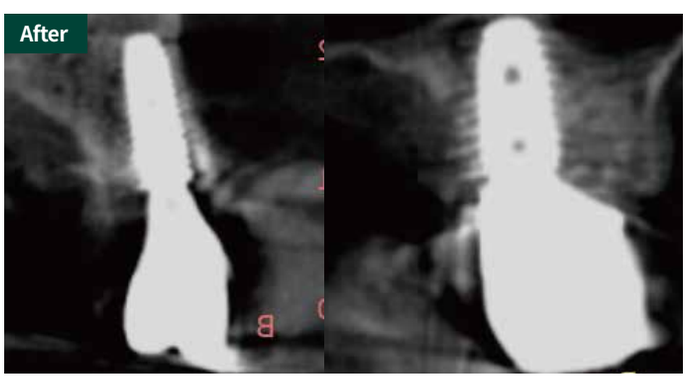
Objectives

- Confirmation of alveolar bone loss and remaining bone morphology due to periodontitis in the maxillary right first and second premolar and first molar areas
- Immediate implant placement planned following the extraction of #14 and #16, with a 3-unit prosthesis scheduled for production
- S1 bone graft material will be used to address the bone defect at the extraction sites

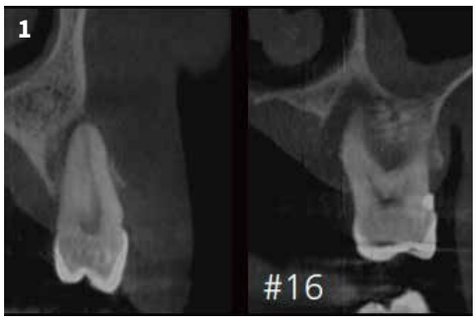
Conclusions

- Despite being sutured in an open wound state immediately after implant placement with bone graft, secondary healing occurred without significant loss of the S1 graft material.
- To account for soft tissue contraction and the potential separation of graft particles when implanted immediately after extraction, a transmucosal bone graft was used to extend the graft material up to the top of the soft tissue.
- Well-formed new bone around the implant was observed on the X-ray 3 months after surgery.





Treatment Steps



Inflammation and alveolar bone morphology on preoperative CBCT

Preoperative intraoral photo

Identification of bone loss area following the extraction of #14, #15, and #16

Hydration of S1 bone graft material

Implant placement following S1 grafting in the extensive bone loss area

Implant placement following S1 grafting in the extensive bone loss area

Suture

Intraoral photo taken 2 months after surgery

Final prosthetics

X-ray taken 3 months after using S1 bone graft material

CBCT taken 3 months after using S1 bone graft material

CLINICAL CASE 16

Narrow Ridge Augmentation in Anterior Area

Dr. Choong Noh

Initial assesment The patient visited with peri-implantitis diagnosed at another clinic. After removing the existing implant, S1 bone graft material was applied to address the bone defect.

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› Implant removal due to peri-implantitis in the mandibular anterior area (#31)
› Horizontal bone augmentation surgery was performed on the labial side of the residual bone

Conclusions

› Final prosthetic placement was completed 3 months after S1 implantation.
› Aesthetic periodontal tissue was observed after the second implant placement.

Preoperative X-ray

Preoperative intraoral photo

Application of S1 bone graft material for horizontal bone augmentation following implant placement (single-stage surgery)

Suture

Abutment placement for prosthetics 3 months after S1 grafting

Abutment placement before prosthetics

Condition of the gingival tissue

Final prosthetics

X-ray taken after final prosthetics

CLINICAL CASE 17

Easy Augmentation of Dehiscence Defect

Prof. Dong Seok Sohn

Initial assesment A 67-year-old woman visited the hospital for the reconstruction of a defect in the maxillary left lateral incisor

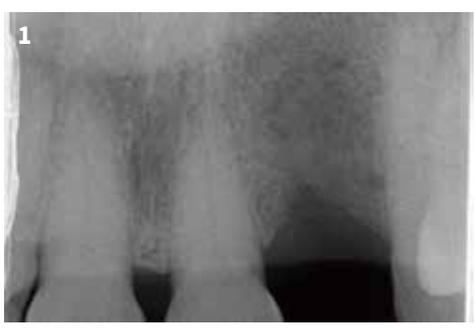
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (CGF) ☐No

Objectives

› Labial resorption of the surrounding alveolar bone was noted after the extraction of the maxillary left lateral incisor.
› To address aesthetic concerns, horizontal bone augmentation was planned. Bone graft material was required to increase the height of the alveolar bone in the marginal area. With the patient's consent, blood was collected to process CGF, which would be used as a membrane.

Conclusions

› Despite the insufficient bone width in the defect area and the challenging anatomical structure, the moldable characteristics of S1 allowed us to easily achieve the desired shape.
› The position of the bone graft material was stably maintained without using a membrane, which helped preserve the shape.



X-ray of the defect area of alveolar bone before surgery

Incision and flap elevation

Dehiscence defect condition after implant placement

Application of S1 bone graft material

Molding to fit the shape of the surrounding alveolar bone

Formation of a membrane using CGF

Postoperative X-ray

CLINICAL CASE 18

Simplified Vertical Augmentation for Advanced Bone Resorption

Prof. Dong Seok Sohn

Initial assesment The patient, who had the second premolar and the first and second molars extracted from the mandibular right posterior region due to severe periodontitis, is planning to undergo implant placement along with vertical bone augmentation of the defect area.

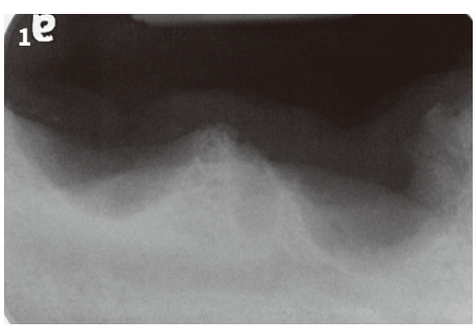
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (COLLA) □ No

Objectives

› After removing the teeth and inflammatory granulation tissue due to severe periodontitis, the residual bone has an irregular shape, necessitating vertical bone augmentation
› New bone regeneration will be induced using S1 bone graft material following implant placement in the #45, #46, and #47 regions

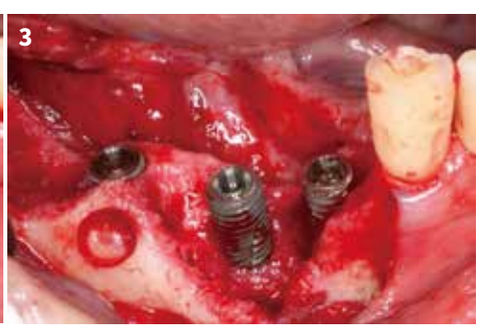
Conclusions

› Despite the extensive bone loss in the defect area, S1 bone graft material could be applied stably to the desired region.
› The S1 bone graft material retained its position without the use of a non-absorbable shape-fixing membrane, facilitating new bone regeneration.
› The periodontal tissue in the S1 graft area healed both aesthetically and stably.



X-ray of the defect area of alveolar bone before surgery

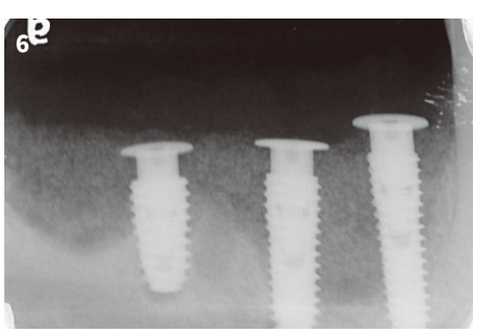
Incision and flap elevation



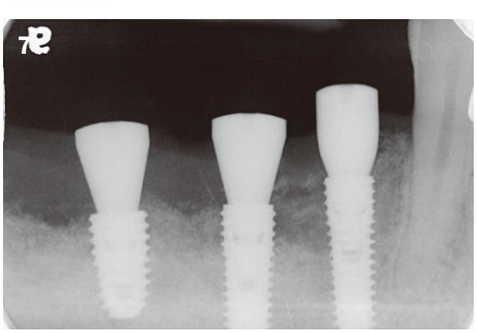
Alveolar bone defect after implant placement

Application of S1 bone graft material to the bone defect area

Use of a COLLA membrane for vertical bone augmentation



Postoperative X-ray



X-ray taken 4 months after bone graft material transplantation

CLINICAL CASE 19

Dough Staged Sticky Bone Graft

Prof. Dong Seok Sohn

Initial assesment A 54-year-old woman visited for the reconstruction of defects in the mandibular right second premolar and first molar areas

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (COLLA) ☐No

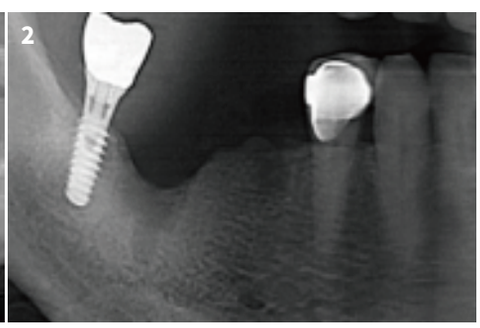
Objectives

› Since the height of the alveolar bone in the mandibular left defect area is uneven, the shape of the marginal area needs to be reconstructed.
› Intramarrow penetration is conducted to encourage the formation of new blood vessels for the bone graft material, as considerable time has passed since the extraction. Meanwhile, the remaining bone surface is healed with dense bone.

Conclusions

› Radiographs taken 3 months after surgery showed that the shape of the marginal bone integrated harmoniously with the adjacent teeth, and the new bone density was satisfactory.
› The moldable property of S1 was confirmed as advantageous in maintaining the one-wall defect at the distal site of the #46 implant placement.

Preoperative X-ray

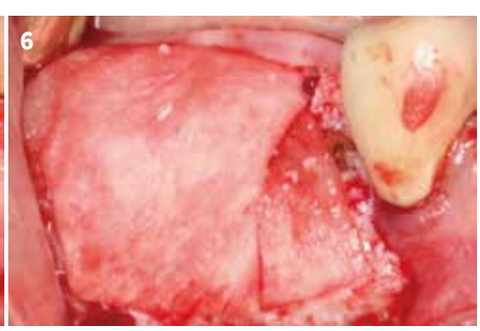


X-ray of the defect area of alveolar bone before surgery

Incision and flap elevation

Alveolar bone defect after implant placement

Application of S1 bone graft material to the bone defect area



Formation of a membrane using COLLA

Final coverage using CGF

Suture

X-ray taken 3 months after surgery

CLINICAL CASE 20

Immediate Implant Placement

Dr. Ho Yeul Jang

Initial assesment Visited because the maxillary left central incisor was loose

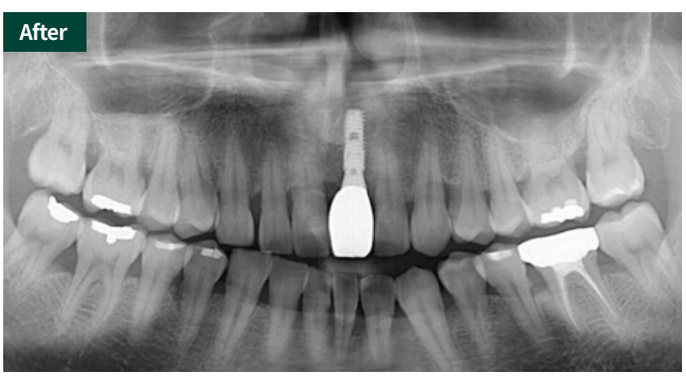
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (COLLA) □No

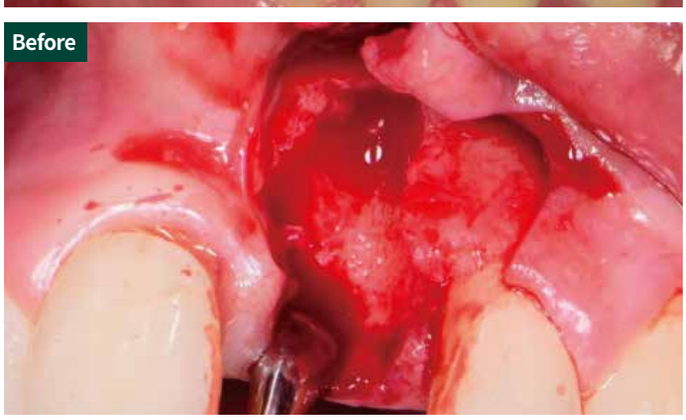
Objectives

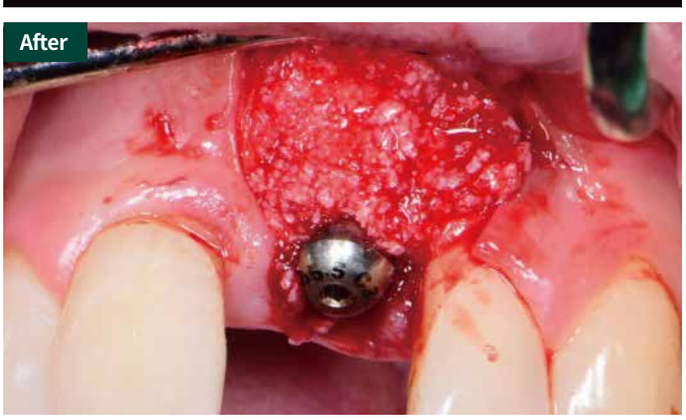
› Immediate implant placement was performed to preserve the alveolar bone and soft tissue.
› Due to labial bone loss, dehiscence defect surgery was carried out, with the incision kept minimal to account for potential edema.

Conclusions

› The use of S1 and COLLA resulted in better preservation of the periodontal tissue compared to before extraction, and aesthetically satisfactory outcomes were achieved.
› The procedure involved minimizing the incision on the periodontal tissue, and the membrane was securely fixed, leading to a favorable prognosis with strong sutures.



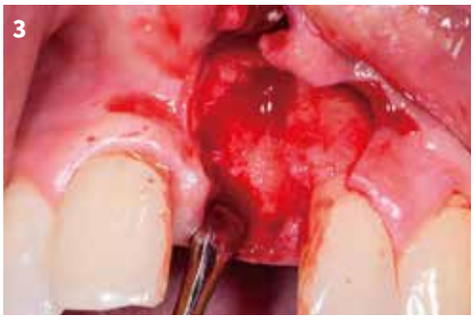




Treatment Steps

Preoperative X-ray

Preoperative intraoral photo



Incision and flap elevation

Application of S1 bone graft material after Implant placement

Application of S1 bone graft material

Use of COLLA membrane

Suture

Postoperative X-ray

Intraoral photo taken 2 months after surgery

Final prosthetic connection 3 months after surgery

Intraoral photo after prosthetics

X-ray 3 months after surgery

CLINICAL CASE 21

Easy 3D Rigde Augmentation

Prof. Dong Seok Sohn

Initial assesment A 75-year-old woman visited to restore the defect area in the mandibular right first premolar and molar

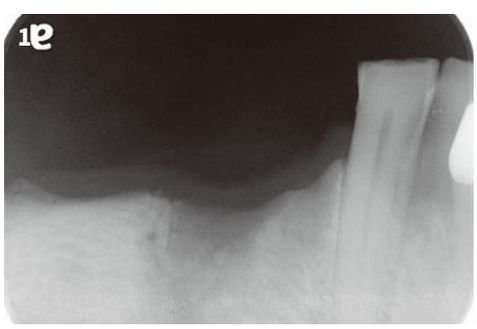
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (CGF) □No

Objectives

› A socket-shaped, three-wall defect was identified in the #44 area after soft tissue elevation during surgery
› Vertical bone augmentation was carried out in the #44 to #46 regions using S1 bone graft material

Conclusions

› Despite the narrow bone width and wide defect area, S1 bone graft material was applied stably to the desired region.
› After the surgery, the shape of the marginal bone integrated harmoniously with the adjacent teeth, and the new bone density was satisfactory.



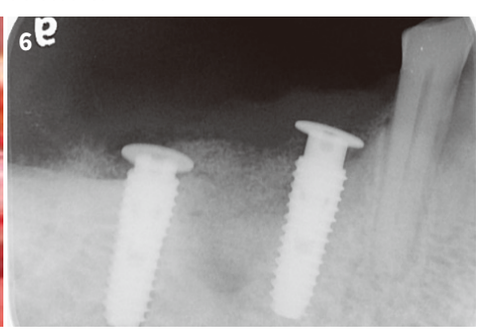
Alveolar bone shape in the defect areas #44, #45, #46, and #47

Implant placement

Application of S1 bone graft material to the bone defect area

Application of S1 bone graft material to the bone defect area

Use of CGF for vertical bone augmentation surgery



Postoperative X-ray

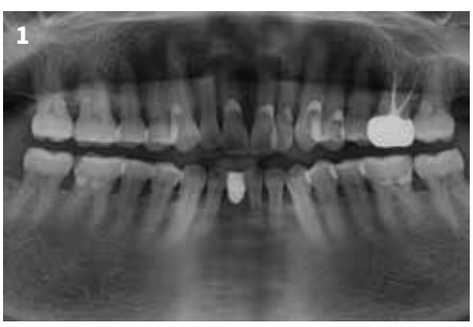
CLINICAL CASE 22

Labial Fenestration Defect

Dr. Choong Noh

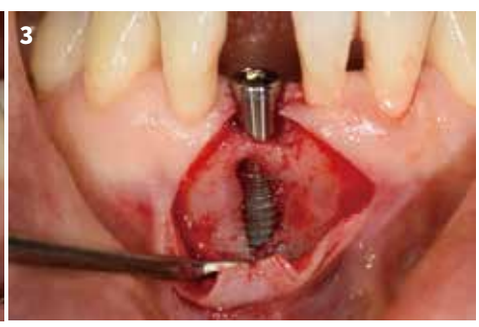
Initial assesment A 57-year-old female patient visited for implant placement of the mandibular right central incisor

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (COLLA) □No



Preoperative X-ray

Preoperative intraoral photo (#41)



Defect area after implant placement

Application of S1 bone graft material

Application of COLLA membrane

Suture

Postoperative X-ray

Final prosthetic connection 3 months after surgery

Postoperative intraoral photo after final prosthetics

CLINICAL CASE 23

Minimally Invasive Bone Grafting in Anterior Area

Dr. Choong Noh

Initial assesment A 67-year-old female patient using partial mandibular anterior dentures visited for implanting a fixed prosthesis. The plan included performing narrow alveolar bone augmentation while minimizing the incision area during surgery.

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (COLLA) □No

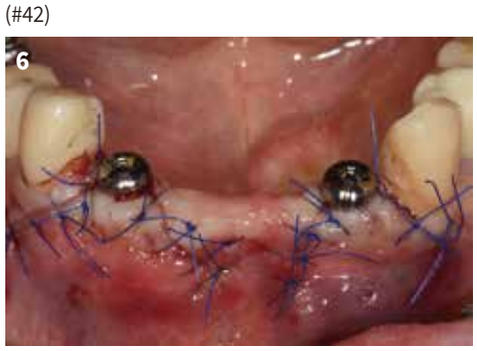
Preoperative X-ray

Preoperative intraoral photo

Application of a COLLA membrane after incision (#42)

Application of a COLLA membrane after incision (#42)

Application of S1 bone graft material between the membrane and the alveolar bone (#32)



Suture

Intraoral photo taken after prosthetics

Intraoral photo taken after prosthetics

X-ray taken after final prosthetics

CLINICAL CASE 24

Horizontal Bone Augmentation

Dr. Choong Noh

Initial assesment A 53-year-old female patient visited for the reconstruction of the mandibular second premolar and molar areas. A significant time has elapsed since the tooth extraction, leading to buccal bone resorption. The plan is to perform horizontal guided bone regeneration following implant placement.

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (COLLA) □No

Preoperative X-ray (#45, #46, and #47)

Preoperative intraoral photo

Implant placement

Application of S1 bone graft material and COLLA membrane

Suture

Intraoral photo after prosthetics

Final prosthetics

CLINICAL CASE 25

Labial Dehiscence in Upper Anterior Area

Dr. Choong Noh

Initial assesment Visited for the restoration of a lost maxillary left canine, with implant placement planned

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (COLLA) □No

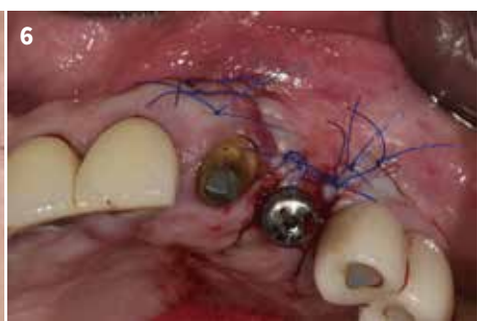
Preoperative intraoral photo

Elevation after soft tissue incision

Application of 0.15 g of S1 bone graft material

Molding of S1 bone graft material to fit the defect area

Application of COLLA membrane



Suture

Intraoral photo after prosthetics

Final prosthetics

CLINICAL CASE 26

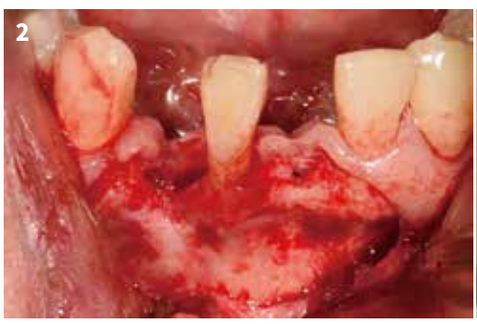
Labial Fenestration in Lower Anterior Area

Dr. Choong Noh

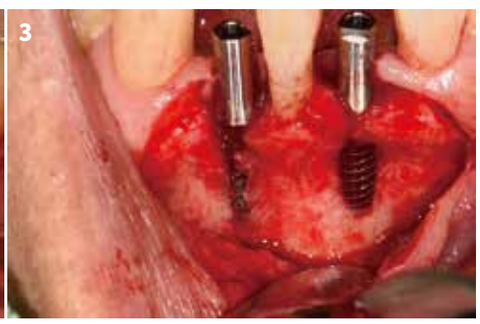
Initial assesment Visited for the restoration of missing mandibular left central incisor and right lateral incisor. Due to the loss of buccal width in the anterior residual bone, guided bone regeneration is planned to be performed simultaneously with implant placement.

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (COLLA) □No

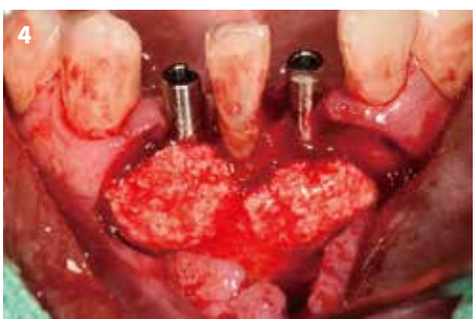
Preoperative intraoral photo (#31, #42)



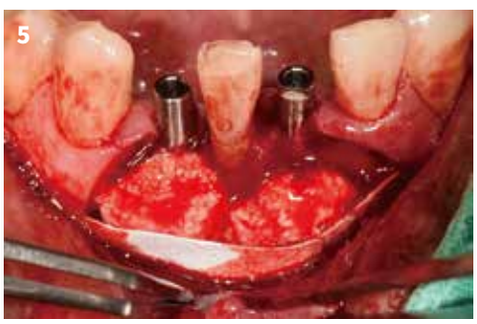
Elevation after soft tissue incision



Implant placement



Application of S1 bone graft material



Application of COLLA membrane

Suture

CLINICAL CASE 27

Peri-Implantitis Treatment with Laser Therapy

Dr. Kacper Koryzna

Initial assesment A 62-year-old female patient, with inflammation next to the prosthesis at #37, where an implant was placed 10 years ago

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› Assess the bone defect around the implant in #37 (the left mandibular second molar) using a panoramic X-ray
› Treating the defect with laser therapy and filling the bone with S1

Conclusions

› Removing granuloma from the implant surface, and filling the bone defect with S1
› S1 adhered well to the implant surface
› New bone formation is expected to occur effectively between the implant threads

Preoperative X-ray (#37)

Laser-assisted incision

Cyst and inflamed tissue

Application of S1 bone graft material to the bone defect area

Postoperative X-ray taken after using S1 bone graft material

CLINICAL CASE 28

Extraction Socket Management

Dr. Alesio Bocari

Initial assesment Toothache and swollen gum in the site #27 caused by vertical root fracture (VRF)

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› After extracting the #27 tooth due to a vertical root fracture (VRF) and removing the inflammation, an immediate implant is placed, and S1 is applied.

Conclusions

› Alveolar Ridge Preservation (ARP) was performed on #27 using S1 bone graft material without a membrane, and the gingival soft tissue healed without inflammation.
› After a year, the site remained very stable with no marginal bone resorption observed.

Preoperative (#27)

Measuring the socket size after tooth extraction

Immediate implant placement

Hydration of S1

Socket management by applying S1

Healing abutment placement

#27 Suture

After 1 week

After 1 month & soft tissue healing

After 1 year

CLINICAL CASE 29

Moldable Augmentaion ☒ in Posterior Area

Dr. Ho Yeul Jang

Initial assesment Visited due to chronic inflammation and mobility of the mandibular left first molar and mandibular right first molar

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

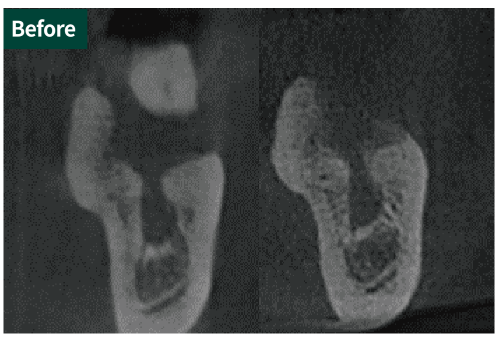
› Extraction planned due to inflammation and vertical mobility of both first molars

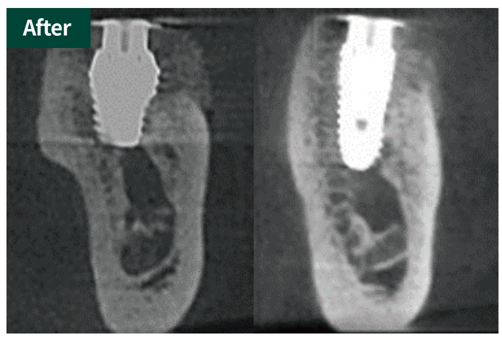
› Three-month observation period after removal of inflammatory tissue following extraction

Conclusions

› Both mandibular first molars were close to the nerve and had extensive bone defects, but stability in new bone regeneration and healing were observed.

› Vertical bone augmentation was performed without a membrane, and CBCT results confirmed that the alveolar bone shape remained stable with fine new bone regeneration.

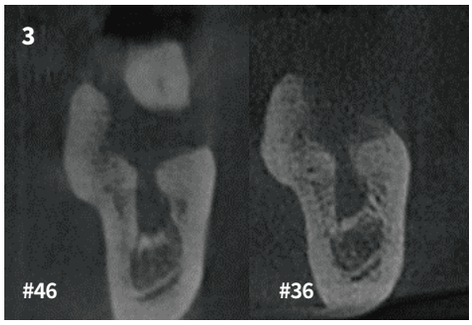




Treatment Steps

3 months after the extraction of both mandibular first molars

Intraoral photo of the left mandibular first molar before surgery



Preoperative CBCT of the mandibular right and left first molars

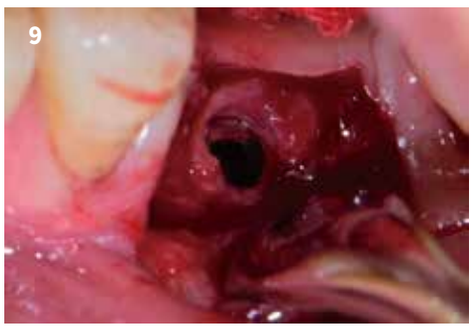
Incision for the mandibular left first molar

Implantation of the mandibular left first molar

Transplantation of S1 bone graft material shaped to fir the defect of the mandibular left first molar

Suture

Postoperative (4 weeks)



Revision surgery (4 weeks later)

Mandibular left first molar, 10 weeks after surgery: healing abutment tightened and sutured

Final prothesis for the mandibular left first molar

Intraoral photo of the mandibular right first molar before surgery

Treatment Steps

Gum incision for the right mandibular first molar

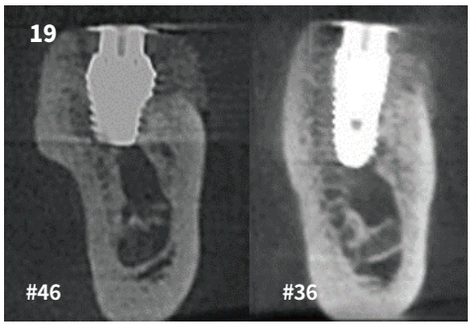
Implant placement for the right mandibular first molar

Transplantation of S1 bone graft material, shaped to fit the defect in the right mandibular first molar

Suture

Post OP (2 months)

2nd surgery



CBCT taken after surgery on bilateral mandibular first molars

Right mandibular first molar prosthesis

X-ray taken after the final prosthetics

CLINICAL CASE 30

Immediate Implant Placement

Dr. Ho Yeul Jang

Initial assesment Visited for a fractured maxillary central incisor that had undergone root canal treatment

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

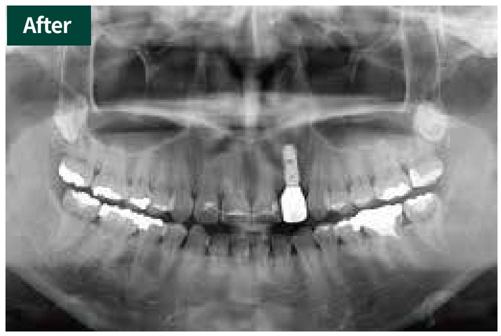
› Immediate implant placement following the extraction of the fractured maxillary central incisor

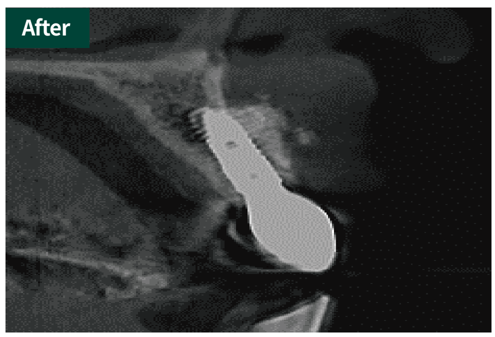
› Bone grafting planned for the extraction socket and thin labial bone

Conclusions

› Bone grafting using the tunneling technique on the thin labial bone in the apical region of the maxillary central incisor

› 3 months after surgery, the bone remained well-maintained and showed no resorption, even with the use of a membrane.

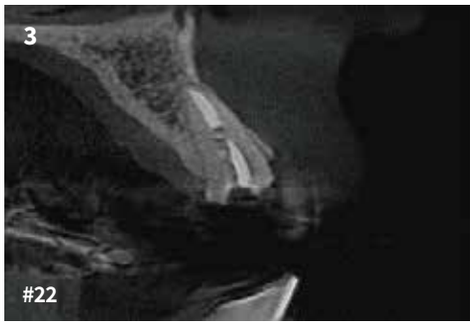




Treatment Steps

Preoperative panoramic radiograph

Preoperative intraoral photo



Preoperative CBCT

After the extraction

Grafting S1 bone material

Implant placement in the optimal position

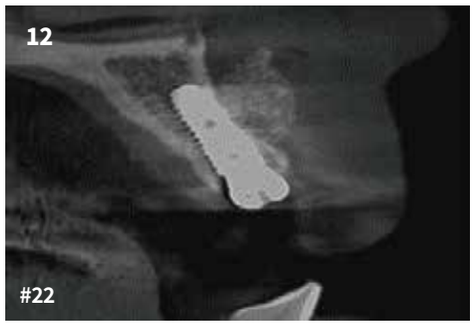
Tunneling technique – soft tissue incision

Tunneling technique – grafting the bone material onto the apical region

Tunneling technique – Suture

Postoperative panoramic radiograph

1 month after surgery



CBCT taken after surgery

Treatment Steps

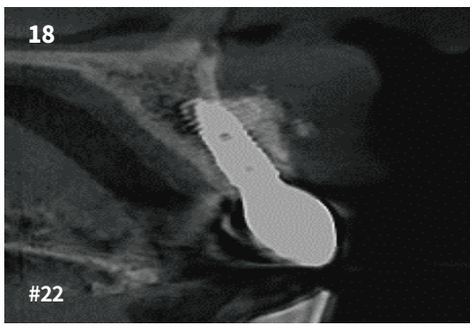
Soft tissue healing 2 months after surgery

X-ray taken 2 months after surgery

Soft tissue healing 3 months after surgery

Panoramic radiograph of the final prosthesis

Final prosthesis of the maxillary left lateral incisor



CBCT of the final prosthesis

CLINICAL CASE 31

Immediate Implant Placement

Dr. Ho Yeul Jang

Initial assesment Visited due to discomfort caused by inflammation and mobility of the bridge prosthesis on the maxillary central and lateral incisors

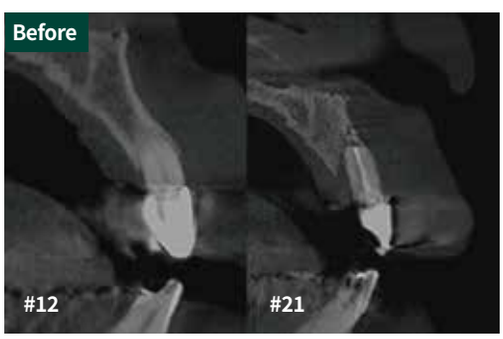
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

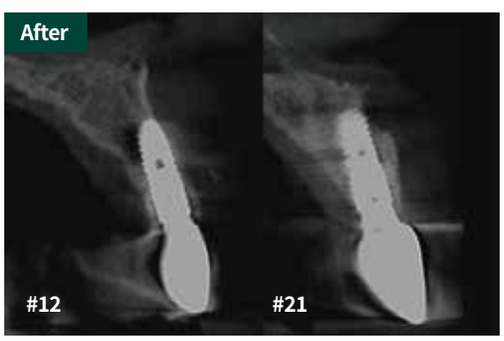
Objectives

› Extraction of the maxillary anterior bridge teeth, and removal of the granulation tissue
› Planning the implant placement and the horizontal bone augmentation simultaneously by observing the absorbed shape on the labial side

Conclusions

› Bone grafting and immediate implant placement following the removal following the removal of granulation tissue from the maxillary central and lateral incisors
› 3 months after surgery, the gum and bone graft volume was well-maintained, even without the use of a membrane

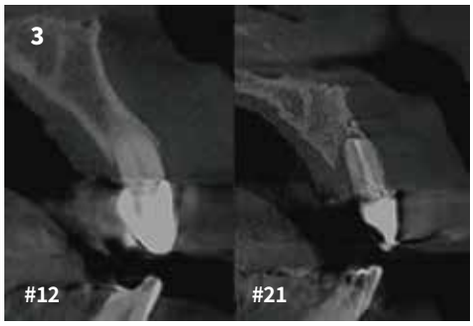




Treatment Steps

Preoperative panoramic radiograph

Preoperative intraoral photo



Preoperative CBCT

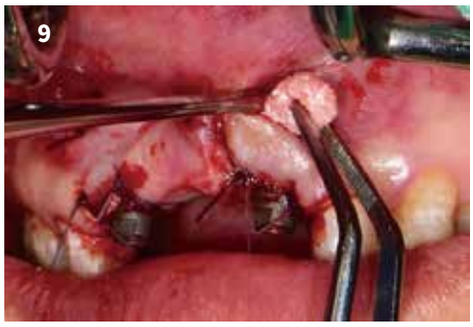
Extraction

Molded S1 bone graft material

Grafting S1 bone material

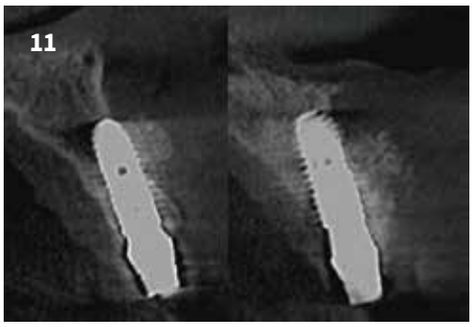
Implant placement in the optimal position

Suturing and bone grafting using the tunneling technique in the apical region of the upper right lateral incisor



Bone grafting using the tunneling technique at the site of the left maxillary central incisor

Postoperative panoramic radiograph



Postoperative CBCT

Temporary prosthesis placement

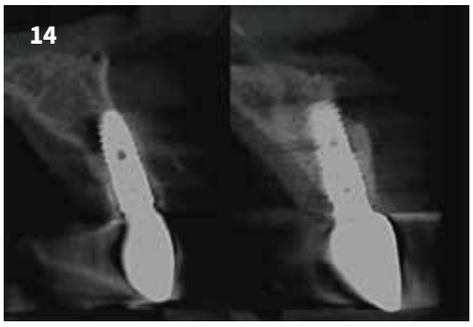
Treatment Steps

Post OP (6 weeks)

Post OP (3 months)

Final prosthesis

Panoramic radiograph of the final prosthesis



CBCT of the final prosthesis

CLINICAL CASE 32

Sinus Augmentation

Dr. Ho Yeul Jang

Initial assesment Visited for implant placement in the maxillary posterior region

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

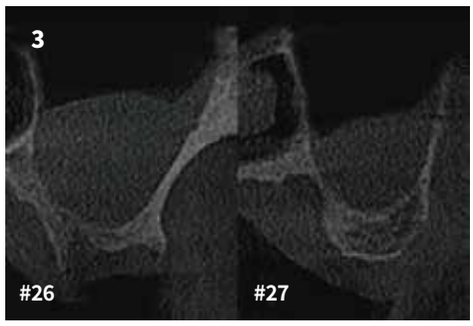
› Inflammation in the left maxillary first and second molars requires removal
› Planning a maxillary sinus lift and immediate implant placement, with the sinus perforation area sealed using PRF

Conclusions

› Inflammation in the left maxillary molar was removed using a syringe
› 3 months after surgery, the size of the inflammation had decreased, and new bone regeneration and implant stability were well maintained.
› At one year and one year and six months post-surgery, no inflammatory changes were observed, and mature bone tissue was present

Preoperative panoramic radiograph

Preoperative intraoral photo



Preoperative CBCT

Removal of the inflammation using a syringe

Hydration and mixing of S1 bone graft powder

S1 bone graft material placed at the site of the maxillary left first and second molars

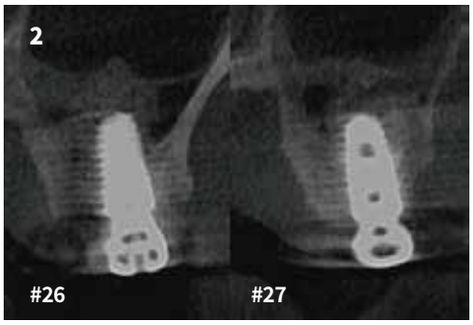
Implant placement in the maxillary left first and second molars

Fastening of the healing abutment

Postoperative panoramic radiograph

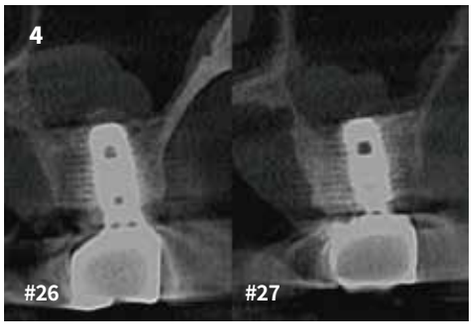
Treatment Steps

Final prosthesis placed after 3 months

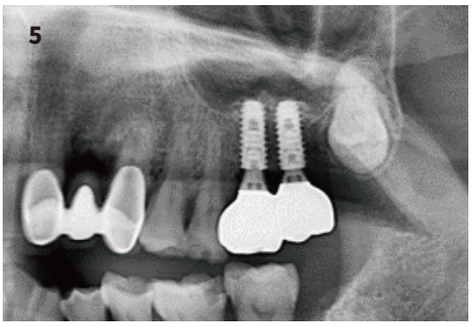


Postoperative CBCT

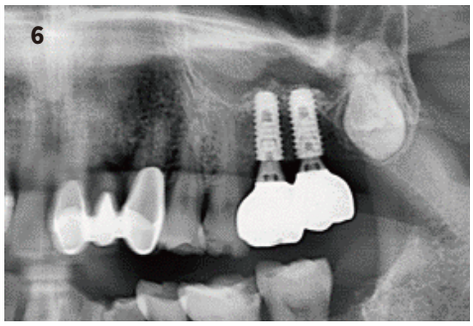
CBCT of the final prosthesis



CBCT of the final prosthesis



Post OP (1 year)



Post OP (1 year and 6 months)

CLINICAL CASE 33

Socket Management in Posterior ☒ Area & Immediate Implant Placement

Dr. Young Jin Cho

Initial assesment An 80-year-old man visited for rapid reconstruction due to food impaction, mobility, and inflammation odor in the mandibular right first molar area

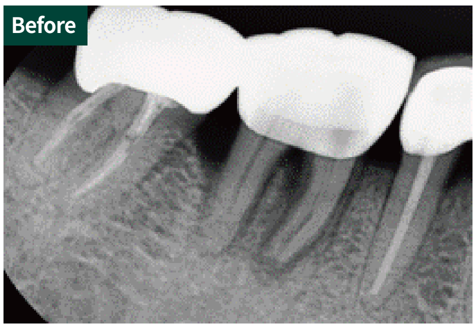
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

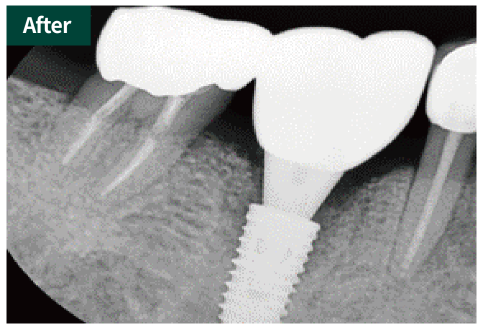
Objectives

› Due to the vertical mobility of the mandibular first molar being at 3 degrees, an immediate implant placement and bone grafting are scheduled following the tooth extraction.

Conclusions

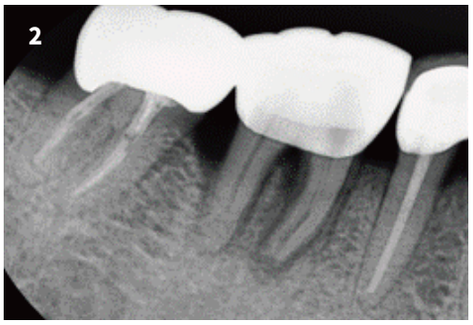
› After extracting the mandibular right first molar, inflammation was removed, revealing thin buccal-lingual cortical bone and a large defect.
› Bone grafting was performed after implant placement to address the large defect at the extraction site.
› 3 months after implant placement, the final prothesis was completed, showing well-maintained shape, successful osseointegration, and stable healing of the gingival soft tissue.





Treatment Steps

Preoperative panoramic radiograph



Preoperative X-ray

Preoperative intraoral photo

Extraction

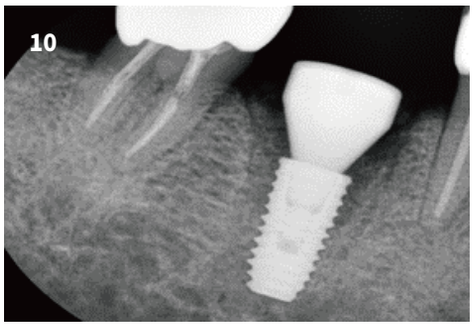
Immediate implant placement

Placement of moldable S1 bone graft material

Insertion of the bone graft material

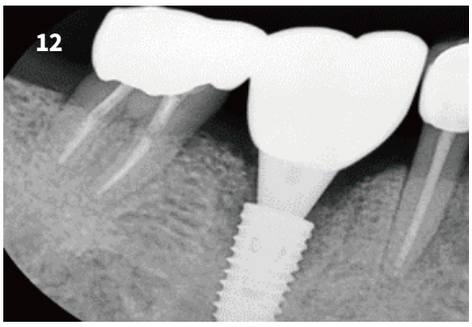
Suture

Post OP (4 weeks)



Post OP X-ray (4 weeks)

Post OP (3 months)



Post OP X-ray (3 months)

CLINICAL CASE 34

Minor Bone Augmentation (Maxillary Sinus Lift Revision Surgery)

Dr. Young Jin Cho

Initial assesment A 57-year-old woman needed implant placement and removal of inflammatory tissue because bone regeneration was unsuccessful following right maxillary sinus lift surgery due to inflammation.
Planning for implant placement will proceed after evaluating the results of the reoperation for maxillary sinus elevation.

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes □ No

Objectives

› Removal of the implant and granulation tissue due to lack of bone regeneration on the right side of the maxilla and alveolar bone destruction from inflammation following maxillary sinus lift surgery

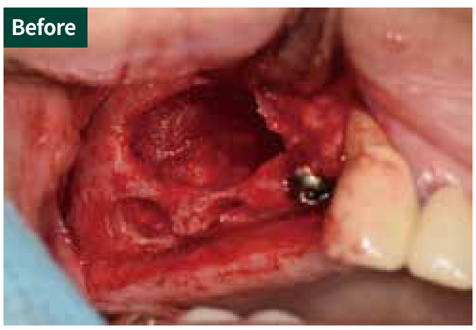
› Planning for new bone regeneration and implant placement using S1 sticky bone graft material for the large defect in the maxillary sinus

Conclusions

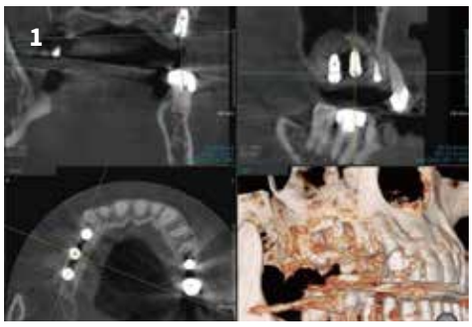
› During the removal of granulation tissue due to a maxillary sinus infection, perforation occurred, which was closed with a membrane, and S1 bone grafting was performed for the large defect.

› Despite the challenging case of maxillary sinus perforation and large defects, the use of sticky bone allowed easy shaping of the defect without causing particle separation and infection of the bone graft material.

› 6 months after maxillary sinus elevation and implant placement in the large defect, a significant reduction in maxillary sinus inflammation was observed, with bone levels and implant fixation stably maintained.

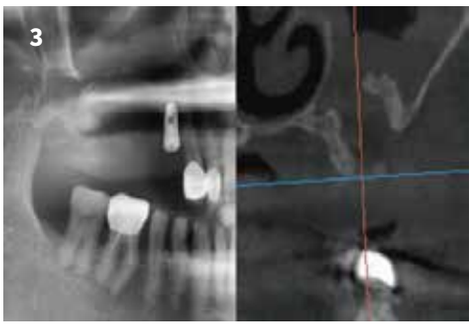


Treatment Steps



Previous) Maxillary sinus lift CBCT (#15, #16)

Implant removal



Panoramic radiograph after implant removal

Large defects observed after removal of granulation tissue from the maxillary sinus

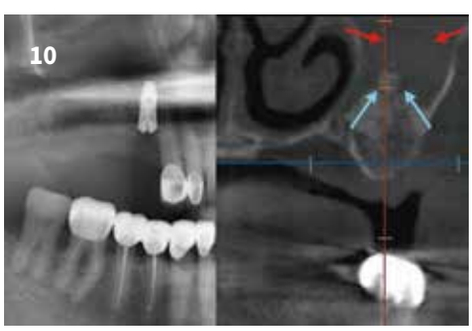
Insertion and coverage of a membrane at the perforation site in the maxillary sinus

S1 bone graft material preparation

Molding of the bone graft material to fit the large defects

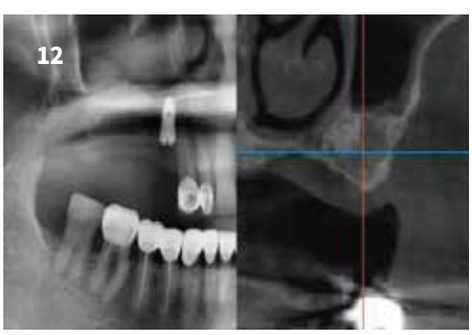
Maxillary sinus lift revision surgery with bone graft

Suture



CBCT taken 4 days after surgery, confirming limited dispersion of the bone graft material

Intraoral photo demonstrating bone regeneration via gum incision



Post OP (6 months)

Implant placement

Identification of gingival soft tissue healing

Final prosthesis

CLINICAL CASE 35

Horizontal Alveolar Bone Augmentation

Dr. Dong-Wook Chang

Initial assesment Visited for mandibular first molar implantation due to prolonged tooth loss

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes □ No

Objectives

› Both adjacent teeth have tilted due to long-term tooth loss, and horizontal augmentation surgery is required due to buccal margin resorption.

Conclusions

› S1 bone grafting and horizontal alveolar augmentation with a membrane were performed, and after 4 months, the alveolar bone was confirmed to be well-formed.

› Due to sufficient implant width achieved through horizontal augmentation, the final prosthesis was stably restored after implantation.

Panoramic radiograph at the first visit

Incision at the tooth site #36

Implant placement

Insertion of S1 bone graft material followed by membrane coverage

Suture

Panoramic radiograph after the 1st surgery

Post OP (4 months and 2 weeks)

Gingival incision to check for bone regeneration

2nd surgery, healing abutment placement

Suture

Final prosthesis of the mandibular left first molar (#36)

Panoramic radiograph after the final tooth restoration

CLINICAL CASE 36

Horizontal Alveolar Bone Augmentation

Dr. Dong-Wook Chang

Initial assesment Visited for mandibular 2nd molar implantation

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes □ No

Objectives

› Observation after bone grafting for a furcation lesion and a large defect in the extraction site due to chronic periodontitis
› Planning the implant placement for the mandibular second molar after assessing bone regeneration progress

Conclusions

› Horizontal alveolar augmentation was performed using S1 bone graft material at the furcation lesion site of the mandibular right first molar and the implant placement site of the mandibular right second molar. After 5 months, it was confirmed that the alveolar bone had regenerated well.
› The results were aesthetically satisfactory.

Panoramic radiograph at the first visit

Preoperative intraoral photo

Ascertainment of bone resorption after incision

Mandibular right second molar (#47) implant placement

Mandibular right 1st molar (#45) and mandibular right 2nd molar (#46) absorbed downward to the bone level

Moldable and sticky bone graft material after hydration

Insertion of S1 to fit the defect

Membrane Insertion

Suture

Treatment Steps

Post OP (1 month)

Post OP (1 month) panoramic radiograph

Post OP (5 months)

2nd OP, healing abutment placement

Final prosthesis

Panoramic radiograph of the final prosthesis

CLINICAL CASE 37

Horizontal Ridge Augmentation

Dr. Goh

Initial assesment A vertical root fracture (VRF) occurred in tooth #27, resulting in the patient experiencing inflammation and pain.

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› The buccal alveolar bone of the maxillary right first premolar (#14) was very thin, so implant placement was accompanied by alveolar bone augmentation.

Conclusions

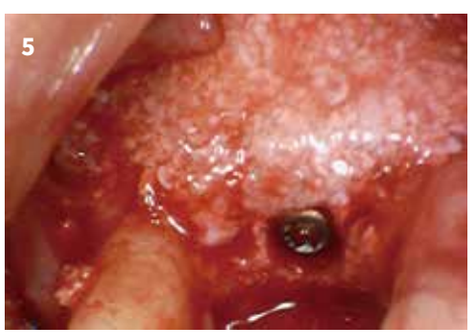
› Horizontal ridge augmentation was performed using S1 bone graft material on the resorbed buccal side, and after 4 months, it was verified that alveolar bone and volume has been successfully regenerated.
› Healing abutment placed after the second surgery

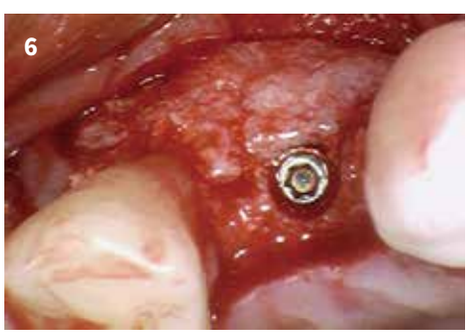
Horizontal marginal resorption on the buccal side of the maxillary right first premolar (#14)

Confirmation of marginal resorption via incision and elevation

S1 bone graft material preparation

Bone grafting on the buccal margin following implant placement in the maxillary right first premolar





Horizontal ridge augmentation

Suture

Post OP (10 days)

Post OP (4 months)

Placement of the healing abutment after the second surgery

Panoramic radiograph after the second surgery

CLINICAL CASE 38

Horizontal Guided Bone Regeneration

Dr. Goh

Initial assesment

Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› GBR was performed for the upper resorption of the maxillary left central incisor, and implant placement was carried out concurrently with the surgery.

Conclusions

› Horizontal guided bone regeneration was performed using S1 bone graft material on the resorbed buccal alveolar bone, and it was confirmed that alveolar bone and volume had been successfully regenerated 4 months later.

Intraoral photo of the upper left maxillary lateral incisor

Confirmation of gingival resorption after gum incision

Confirmation of implant penetration into the buccal soft tissue

Buccal GBR performed after implant placement in the left maxillary lateral incisor

Suture

Suture

Post OP (3 days)

Post OP (3 days)

CBCT (3 months)

Intraoral photo (4 months)

CLINICAL CASE 39

Narrow Ridge Augmentation ☒ in Posterior Area

Dr. Jaebum Lee

Initial assesment After extracting the existing tooth from the narrow buccal bone, alveolar ridge preservation was performed using S1

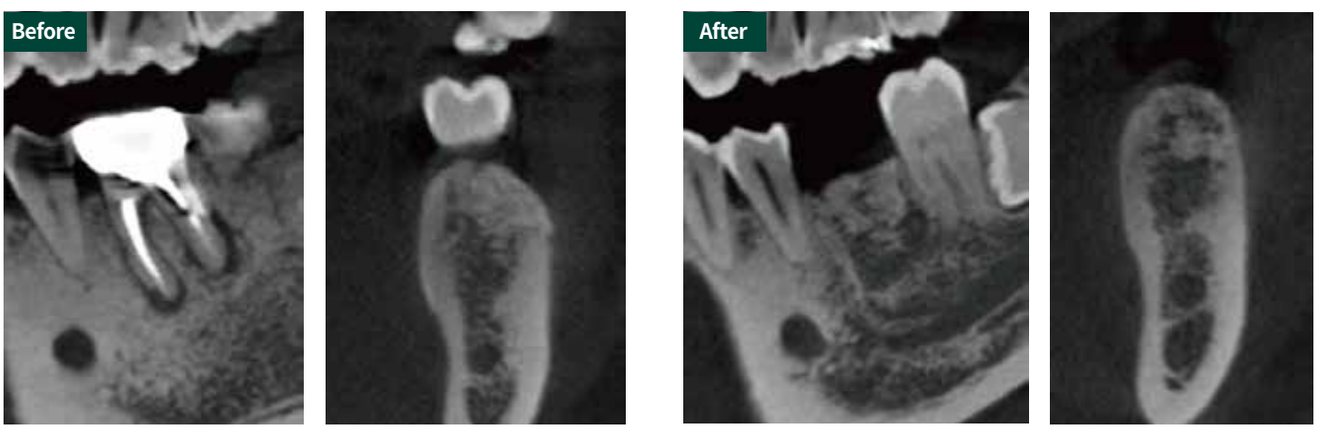
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes □ No

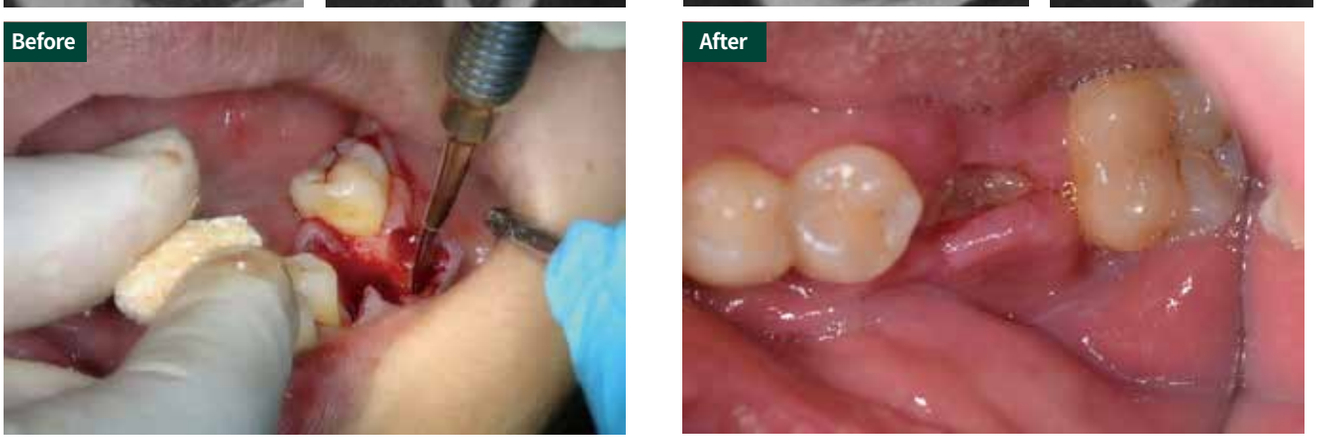
Objectives

› After tooth extraction, S1 was placed in the socket and open technique was proceeded using a PRF membrane.

Conclusions

› Even though the open technique was proceeded without a membrane, the soft tissue healed well.
› Bone formation was splendid after 6 months.





Treatment Steps

Preoperative X-ray

Identification of the bone defect after extraction

Application of S1 bone graft material

Covering bone with a PRF membrane

Suture

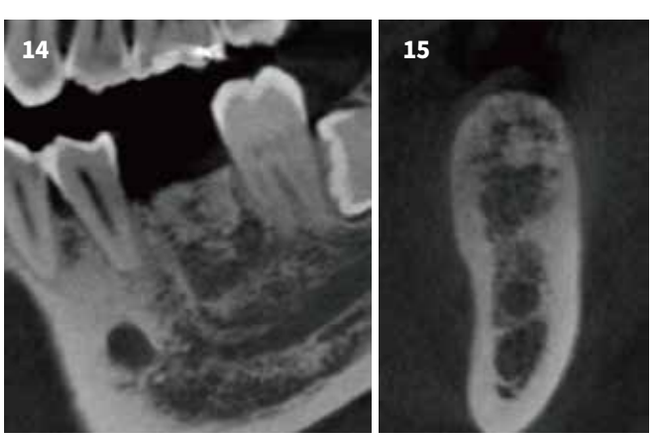
Suture

Post OP

Post OP

Post-surgery healing status

Post-surgery healing status



X-ray taken after using S1 bone graft material

MedPark

Tel +82 2 554 8776 **E-mail** biz@medpark.net
www.medpark.net

EN.ver.12 (202411)