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 78 years old female patient has suffered from gingival swelling & pain due to Vertical root fracture of Lt. 2nd premolar.

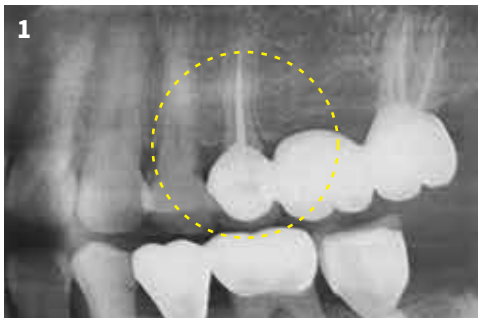
Products **S1 Bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› Extensive bone destruction even apical & buccal aspect was found in CT scan. Thus, Alveolar ridge preservation procedure with S1 was required prior to place implant

Conclusions

› Despite of single use of S1 without membrane covering for ARP, Extra-fine soft tissue healing and full coverage was found in a month. And ridge contour was preserved for 5 month of healing time. histologic evaluation revealed extra-fine new bone formation in quantity and quality of regenerated bone



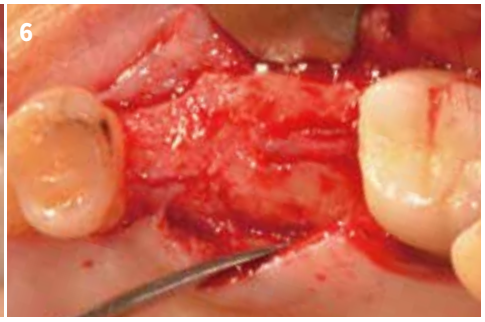
Preoperative x-ray

Tooth extraction

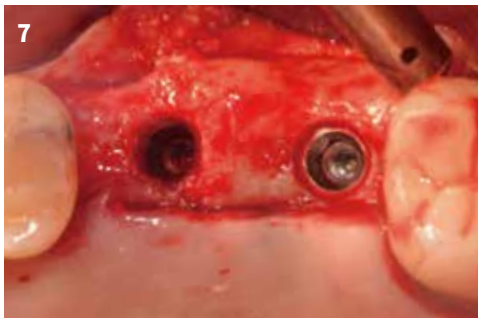
Application of S1 bone graft material and suture (Open socket)

Post OP (2 weeks)

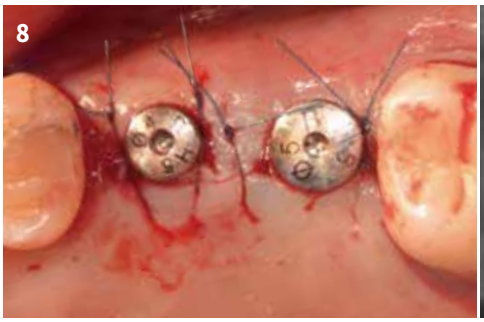
Post OP (2 months)



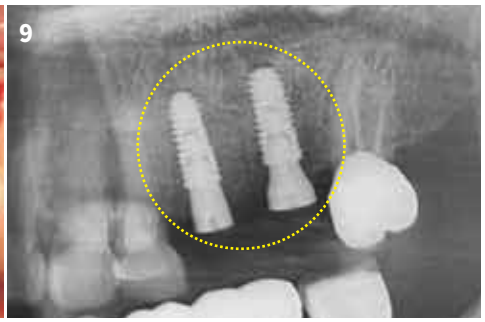
Post OP (5 months)



Post OP (5 months), Implant placement



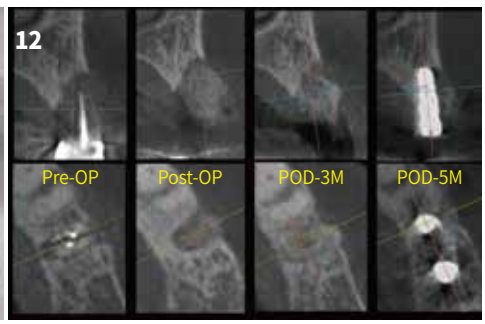
Post OP (5 months), suture



Post OP (5 months), Implant placement

Post OP (7 months), Prothesis

Post OP (7 months), Prothesis



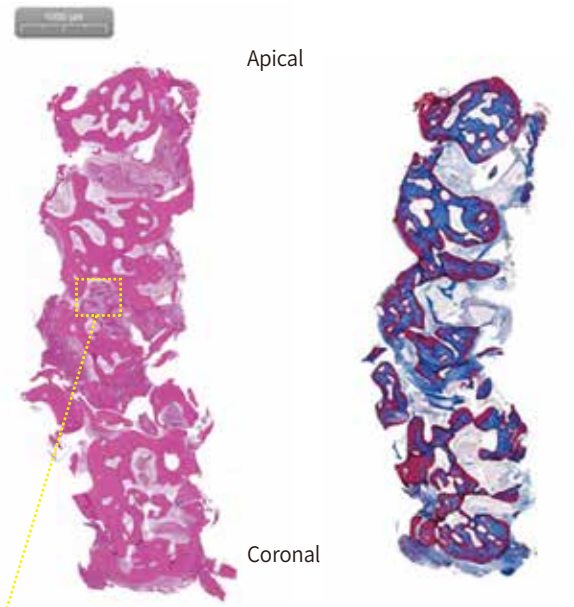
Alveolar bone changes on CBCT

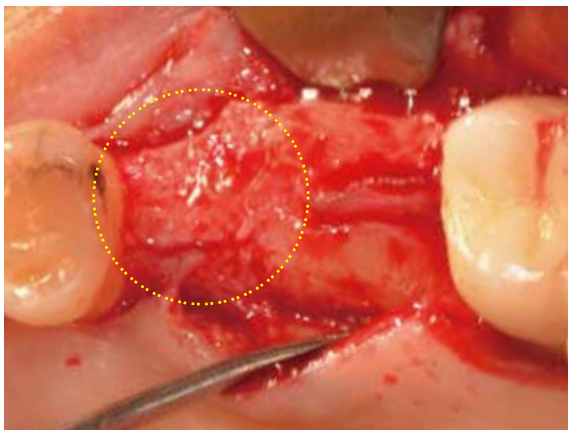
Biopsy time 5 month after S1 bone graft material use

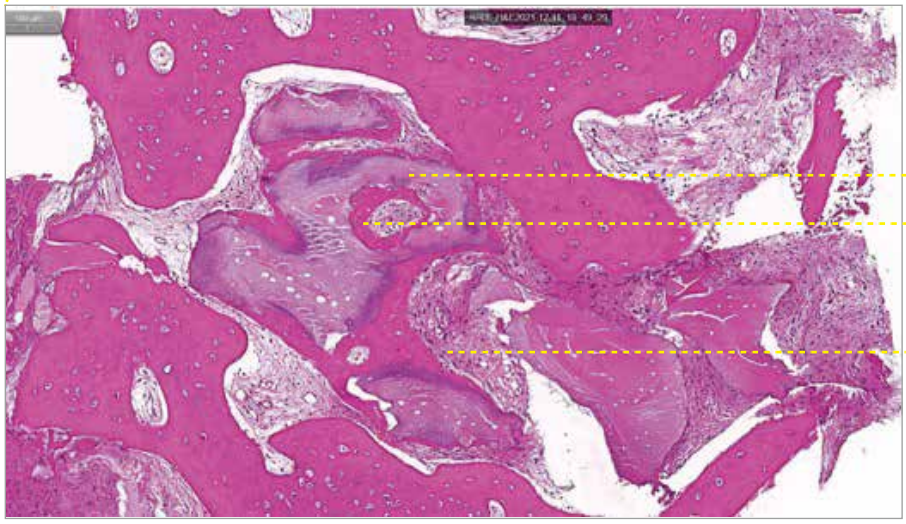
Biopsy method Collect at 6mm depth by using Trephine bur from #13(universal system) implant placement area

Findings **Despite of single use of S1 without membrane covering for ARP, histologic evaluation revealed extra-fine new bone formation in quantity and quality of 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 Implant Br. Of Lt. maxilla with buccal bone defect, 41 years old male patient who suspected heavy smoker.

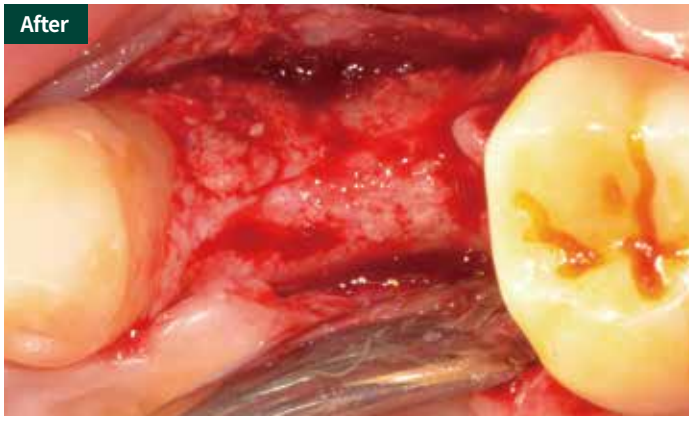
Products **S1 Bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes □ No

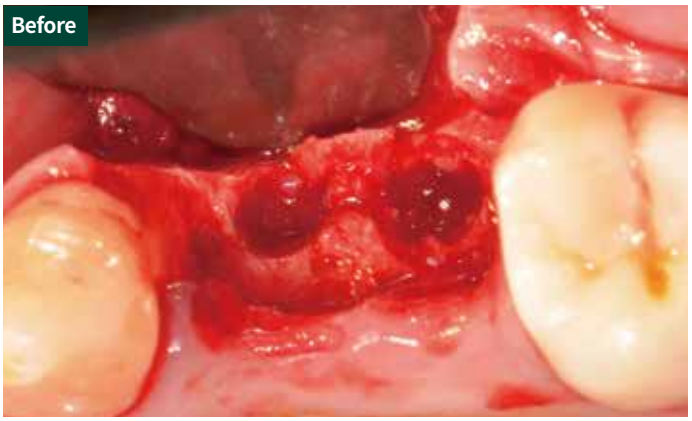
Objectives

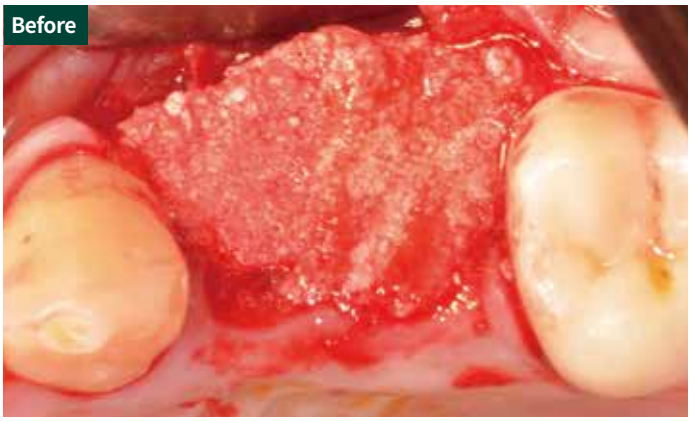
› After Fixture removal, Severe buccal dehiscence defect & poor soft tissue condition enabled only Alveolar Ridge Preservation on Lt. Premolar area. S1 bone was applied on dehiscence defect and collagen membrane covering was done

Conclusions

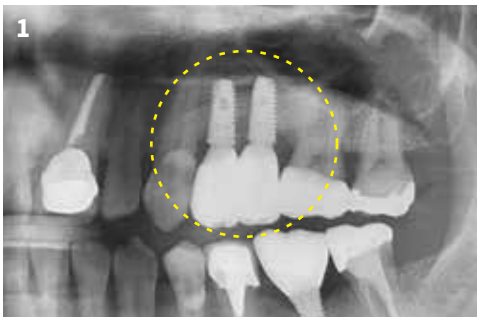
› Not only volumatic change was found in CT scan, but also clinical situation for implant placement was acceptable. Additional bone graft was done simultaneously with Implant placement 5 month after ARP. Fine bone regeneration was found on histologic evaluation







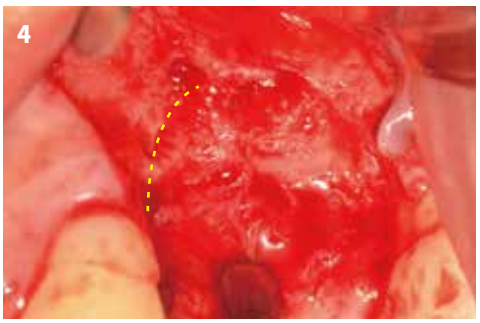
Treatment Steps



Preoperative x-ray

Peri-implantitis condiction

Defect after old fixture remove



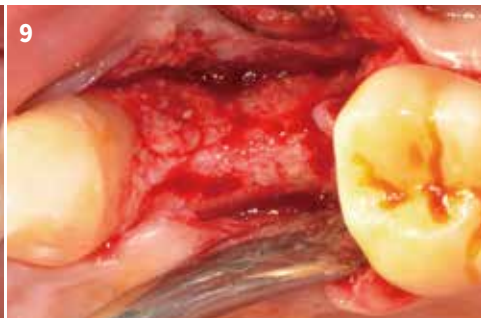
Huge Defect after fixture remove

Application of S1 bone graft material

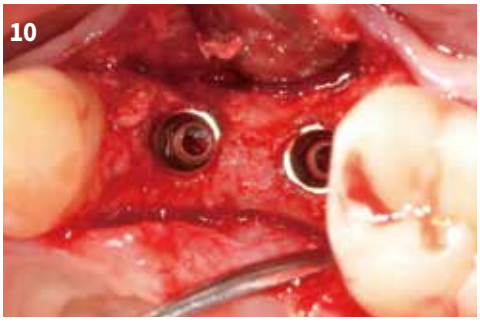
Application of S1 bone graft material

Bone covering with granulation tissue with collagen membrane

Post-OP (5 months)



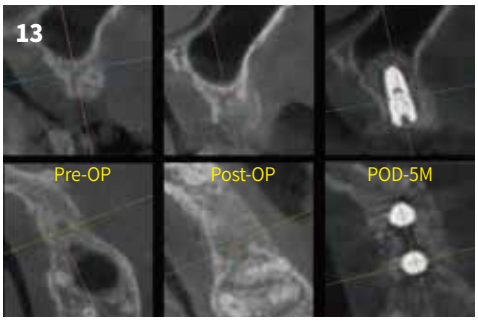
Post-OP (5 months)



Post OP (5 months), Implant placement

Post OP (5 months), Implant placement

Post OP (9 months), Prothesis



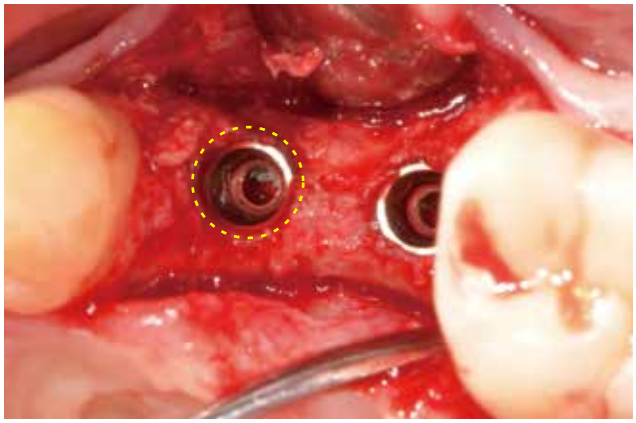
Alveolar bone changes on CBCT

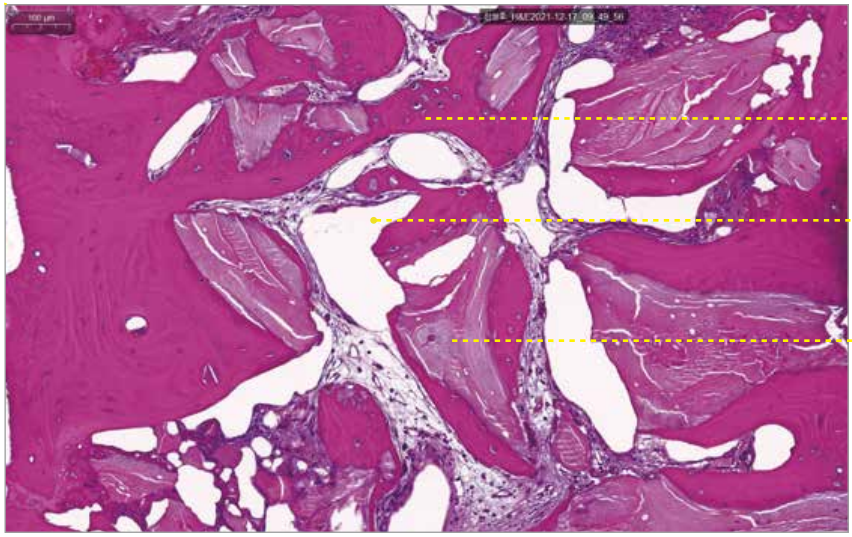
Biopsy time 5 month after S1 bone graft material use

Biopsy method Collect at 6mm depth by using Trephine bur from #12(universal system) implant placement area

Findings **Although it was a wide defect, Fine bone regeneration was found on 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 47 years old male patient's got a floating tooth on Rt. Mn. Canine with advanced apical periodontitis. Alveolar Ridge Preservation was required for 2 wall Extensive bony defect and poor soft tissue condition. And more than 6 month of healing period for implant placement was expected

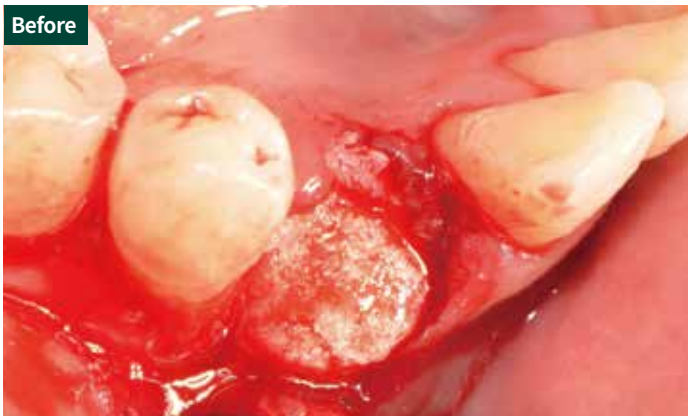
Products **S1 Bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

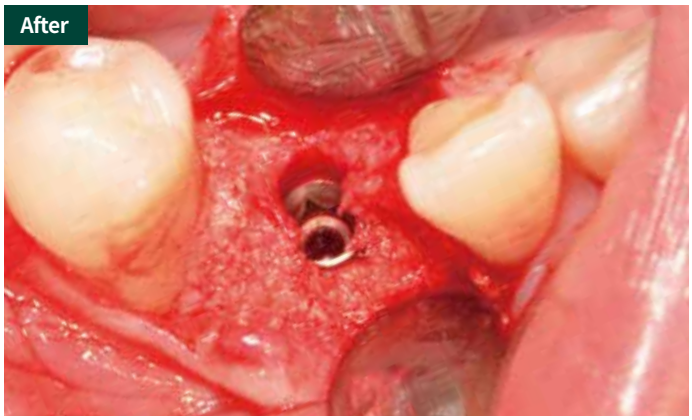
Objectives

› After Tooth extraction, thick Inflamed soft tissue was peeled off carefully from underlying bone. Then, S1 bone application was done on huge defect, And covered with granulation tissue that play a role of protective membrane for graft material

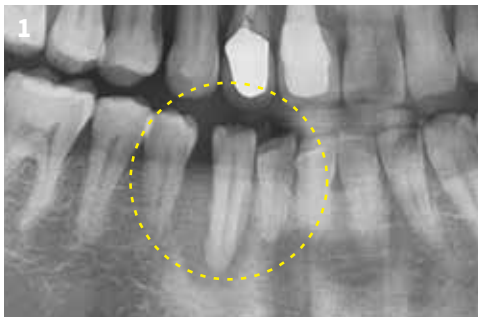
Conclusions

› For 5 months, Soft tissue and bony contour was well preserved in CT scan. But regenerated bone shows soft bone quality despite of histologic result was acceptable bone regeneration. More than 6 month of healing period would be required for implant placement in case of 1-wall or 2-wall defect

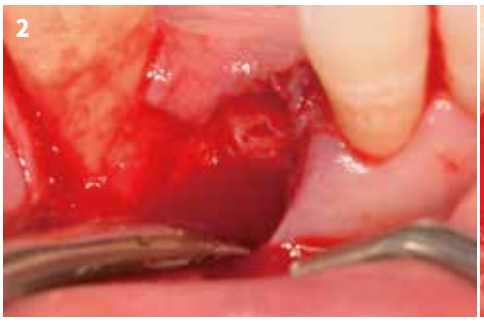




Treatment Steps



Preoperative x-ray



Huge defect after Tooth extraction

Application of S1 bone graft material

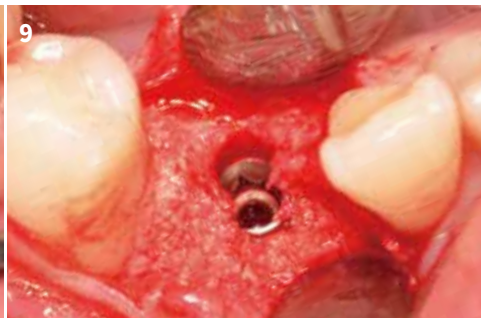
Bone covering with granulation tissue without membrane

Post-OP (2 weeks)

Post-OP (6 weeks)

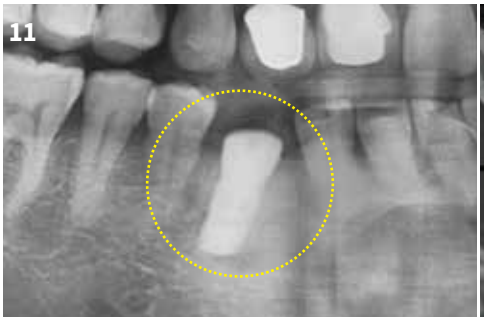
Post-OP (5 months)

Post-OP (5 months)

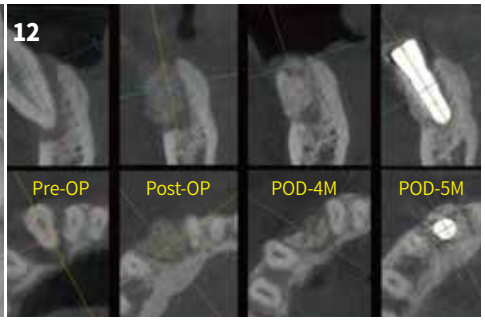


Post OP (5 months), Implant placement

Post OP (5 months), Implant placement



Post OP(5months)



Alveolar bone changes on CBCT

Post OP (8 months), prosthesis

Post OP (8 months), prosthesis

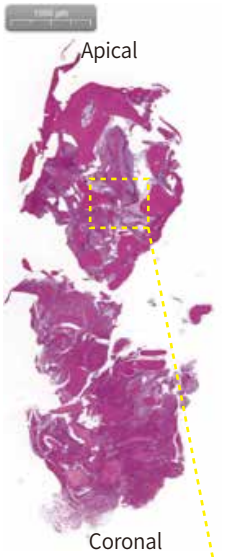
Post OP (9 months)

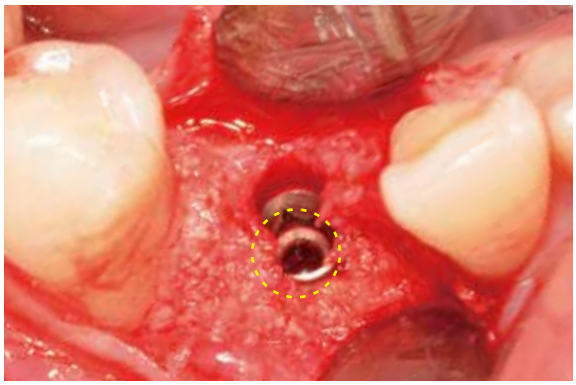
Biopsy time 5 month after S1 bone graft material use

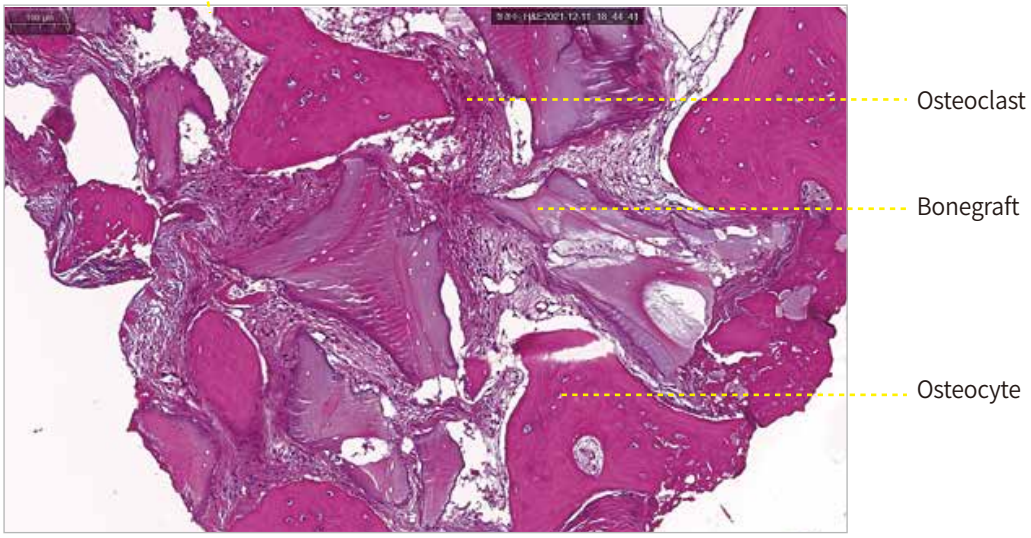
Biopsy method Collect at 6mm depth by using Trephine bur from #27(universal system) implant placement area

Findings **In case of 1-wall or 2-wall defect More than 6 month of healing period would be required for implant placement, regenerated bone shows soft bone quality and histologic result was 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 Visited for peri-implantitis of the mandibular left first and second molars Removal of existing implant and inflammation curettage through guided bone regeneration surgery. After observing the results, perform implant placement

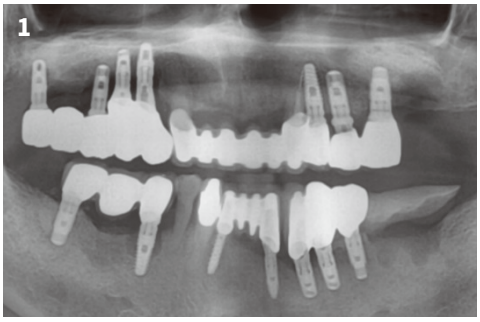
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

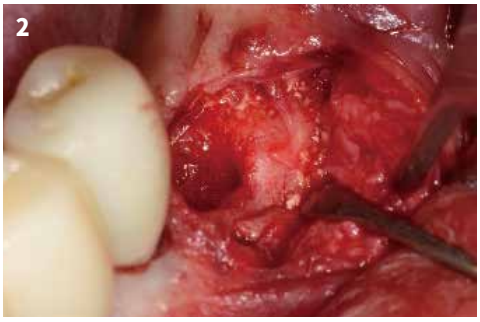
› Where there is insufficient support space for implant placement due to a creation of a wide socket range after removal of a peripheral inflammatory tissue due to peri-implantitis
› On the day of GBR surgery, after soft tissue elevation, traces of the bone graft material used for previous implant placement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

Conclusions

› At 6 months after S1 bone graft material use, the boundary line between the S1 bone graft material and the natural alveolar bone is naturally connected to generate new bone
› Biopsy results of the new bone formed in the implant placement site confirmed that osteocytes were generated around the graft material and connected to form a mature bone

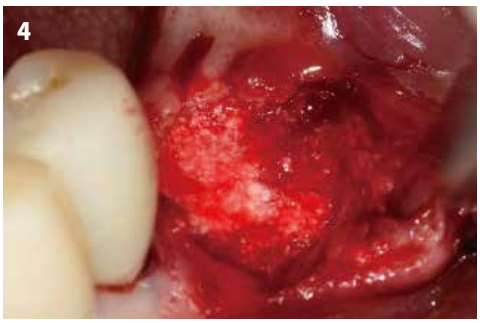


Preoperative X-ray (#36, #37)



Implant removal and inflammation curettage

Application of S1 bone graft material



Application of S1 bone graft material

Intraoral photo at 6 months after application of S1 bone graft material

Soft tissue incision for implant placement

Implant placement in newly formed bone

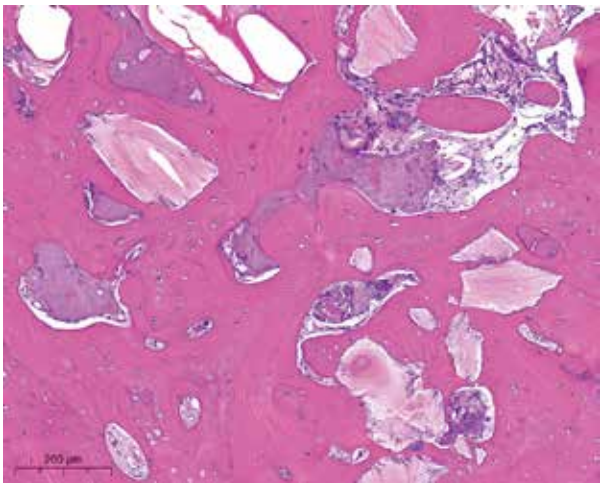
Suture after connecting healing abutment

X-ray after implant placement (6 months after S1 bone graft material use)

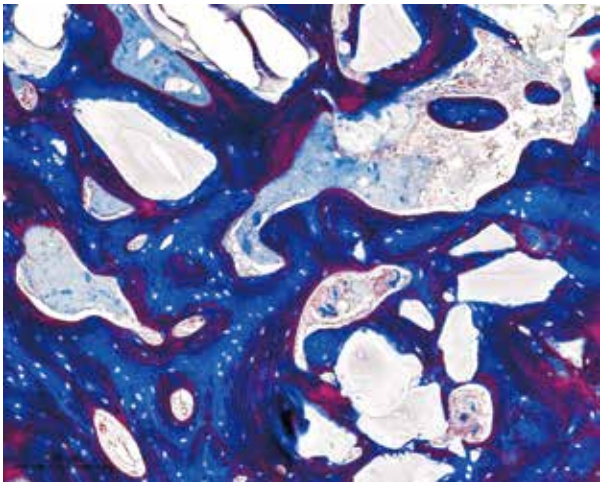
Biopsy time 6 months after S1 bone graft material use
Biopsy method Collect at 6mm depth by using Trephine bur from #36 implant placement area

Findings
- **After 6 months, the bone formation rate was confirmed to be 60.29%, and most forms a network with mature bone.**
- **It is confirmed to be safe as a graft material, as there are no signs of inflammation or immune rejection**
- **Osteogenesis was formed in a form surrounded by bones around the graft material, and the uniform distribution of osteocyte was 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. Performed vertical and horizontal bone augmentation at the base of the maxillary sinus by using a lateral approach as there is 1 mm of residual bone in the maxillary left posterior region near the maxillary sinus.

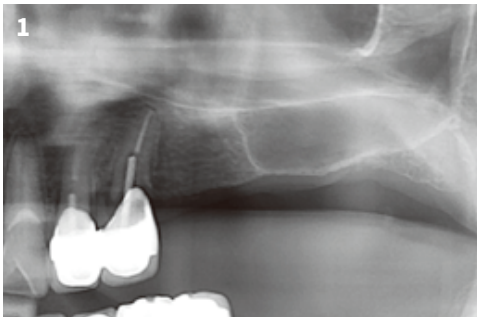
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

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

Conclusions

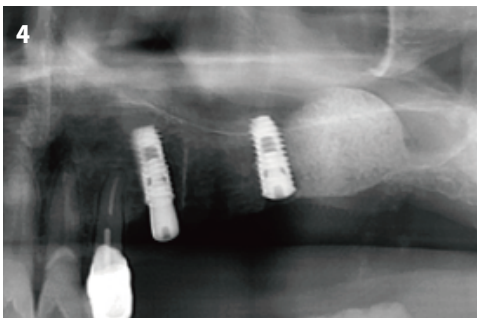
› A case that shows the formativeness of a space by lifting the sinus floor membrane using S1 bone graft material
› Hard bone is formed in which resistance can be felt on Trephin burs when collecting for biopsy of the S1 bone graft material area
› As a result of the biopsy, a new bone was well formed around the graft material and mature bone tissue could be observed.



Preoperative X-ray

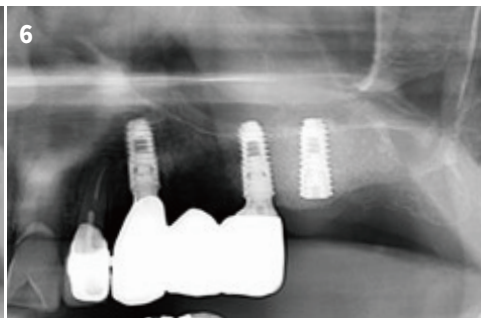
Intraoral photo before left maxilla graft

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

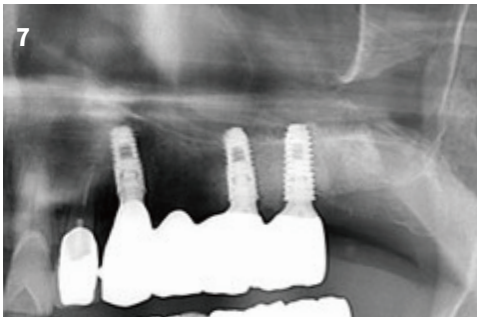


X-ray immediately after using S1 bone graft material

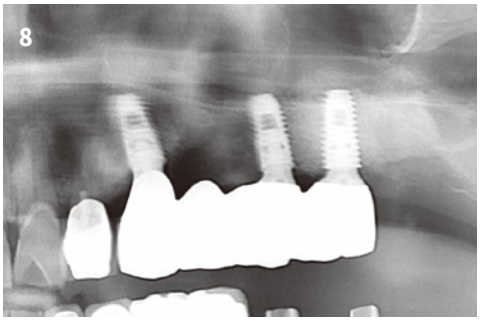
Implant placement in #26 area at 4 months after using S1



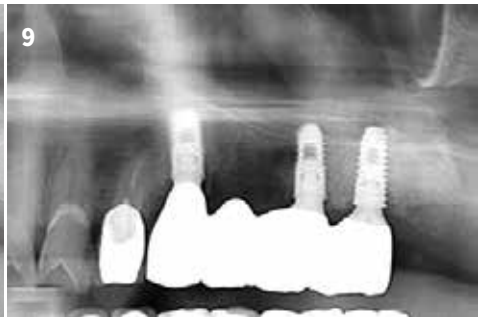
Biopsy request for posterior region of #26 at 11 months after using S1



Final prosthetics



X-ray after 26months



After 33 months of using S1 bone graft material

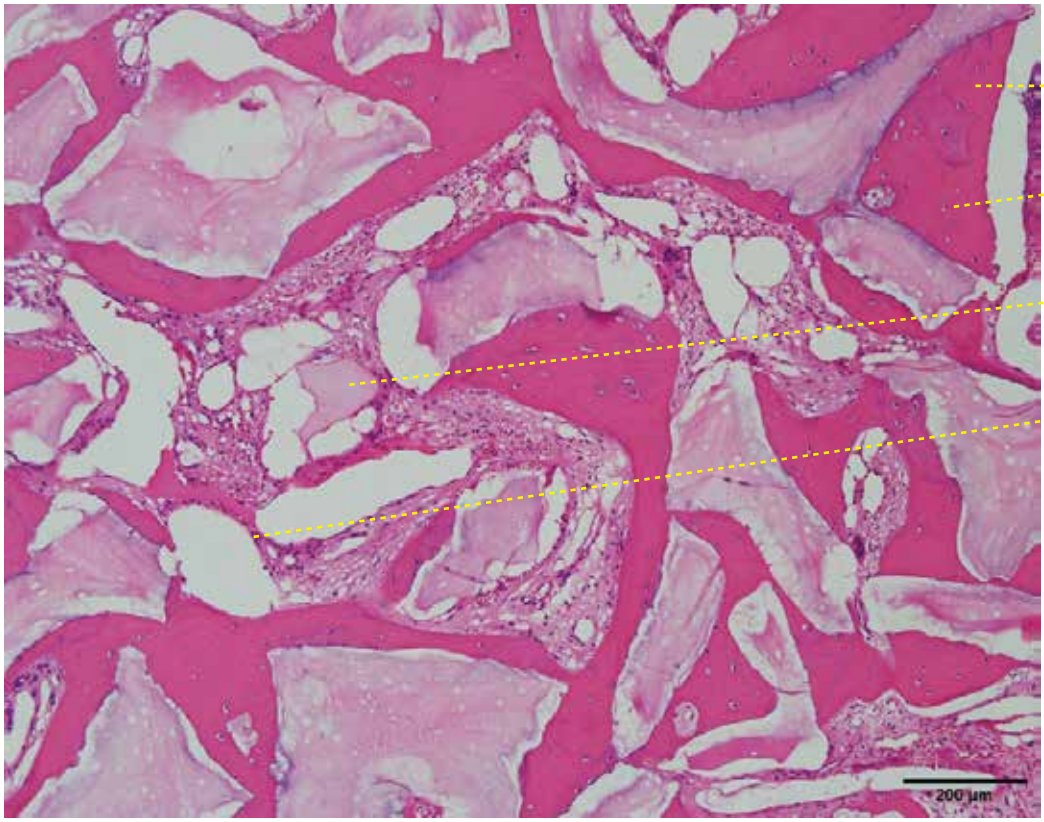
Biopsy time 11 months of S1 bone graft material use

Biopsy method Collect at 6 mm depth by using Trephine bur from the posterior side of the implant placement area

Findings

- **It is considered safe as a graft material, as there are no signs of inflammation or immune rejection**
- **High-quality bone is formed uniformly from the host bone to the maxillary sinus mucosa**
- **Most of the new bone is connected to the graft material, and the newly formed bone forms 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 Situation requiring extraction of the entire maxillary tooth and removal of the inflamed tissue due to periodontitis in the oral cavity Because extensive horizontal and vertical bone reconstruction of the maxillary alveolar bone was required, implant placement was planned at 4 months after bone augmentation

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

Objectives

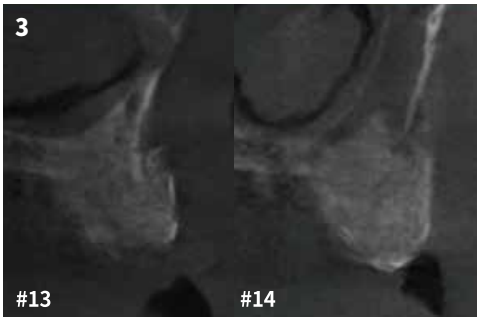
› The loss of alveolar bone due to periodontitis progressed over a wide range, and large bone defects were observed in the maxillary right canine and the first premolar area.
› Horizontal and vertical guided bone augmentation using S1 and a non-absorbable membrane.

Conclusions

› Using a guided bone regeneration technique that has been widely performed, the biopsy shows good ossification and good bone quality where the boundary between the bone graft and the new bone cannot be observed.
› When soft tissue was elevated After 4 months of using the bone graft material, there was sufficient bone quality and bone width for implant placement.

Preoperative X-ray

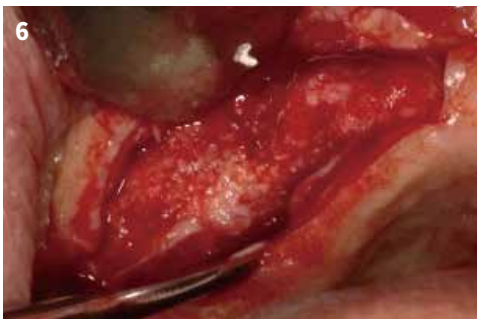
Postoperative X-ray after using S1 bone graft material



CBCT after using S1 bone graft material

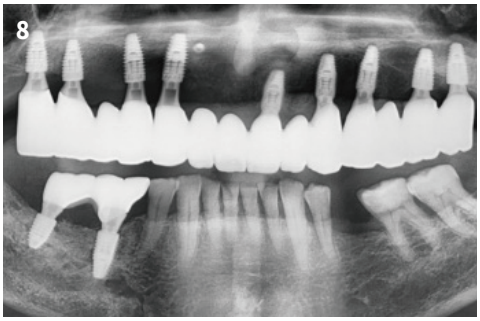

Intraoral photo after 3 months (lateral right maxilla)

Intraoral photo after 3 months



Soft tissue incision after 4 months for implant placement

Abutment connection for Final prosthetics



X-ray after Ffnal prosthetics

Final prosthetics

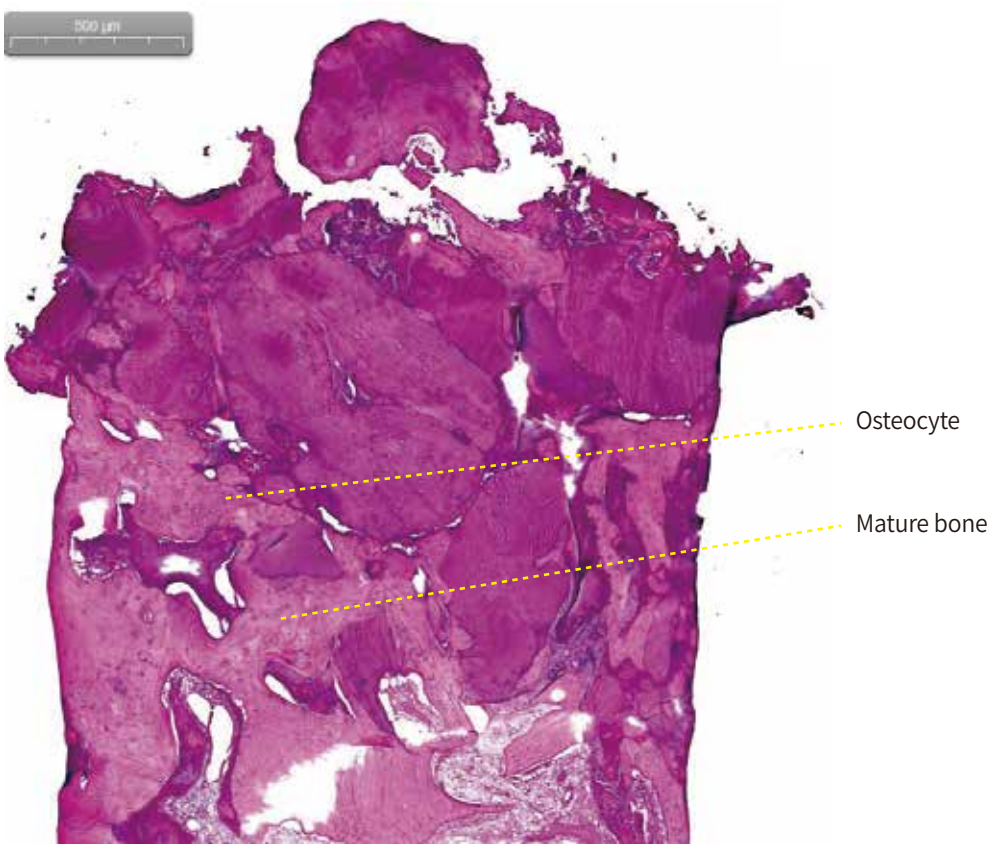
Biopsy time 4 months of S1 bone graft material use

Biopsy method Collect at 6mm depth using Trephine bur from #36 implant placement area

Findings

- **Ossification was good enough that the boundary between the bone graft material and the new bone was not visible, and bone quality was good**
- **It has been confirmed as a mature ossification, stage in which osteoblasts are observed in the bone graft material, further than the initial stage of bone formation in which osteoblasts are active**
- **It is considered safe as a graft material, as there are no signs of inflammation or immune rejection**
- **The bone formation is very good with densely attached connection is densely attached as the bone graft and the new bone have good affinity**

› 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 For reconstruction of a bone defect caused by an inflammatory cyst at the root of the mandibular right first molar tooth, it is planned that guided bone reconstruction surgery by using S1 bone graft material will be performed first, and then implant placement will be performed after confirming bone tissue formation

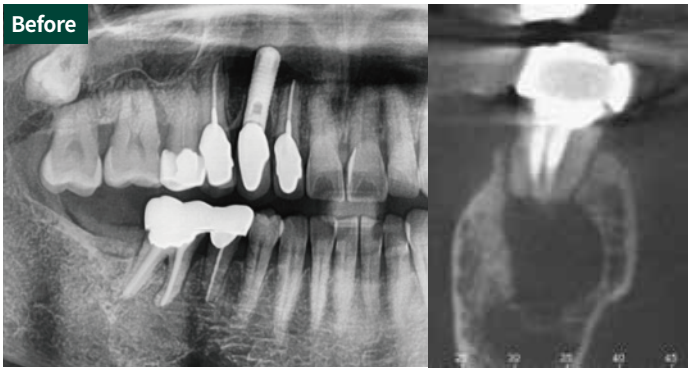
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

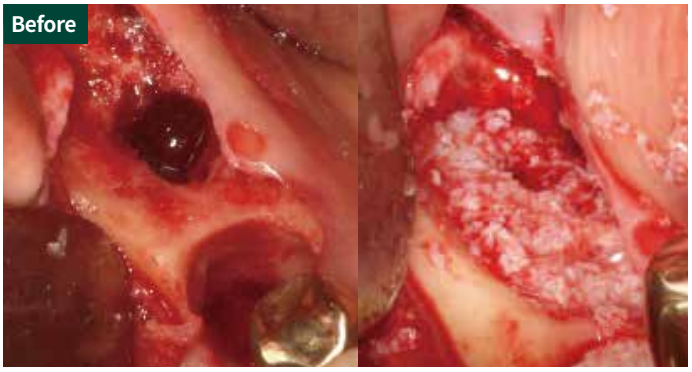
Objectives

› Implant placement plan for the right mandibular first and second molars.
› Observation of a large cyst and inflamed tissue below the 1st molar apex.
› Planned implant placement after extraction and guided bone reconstruction in the affected area.

Conclusions

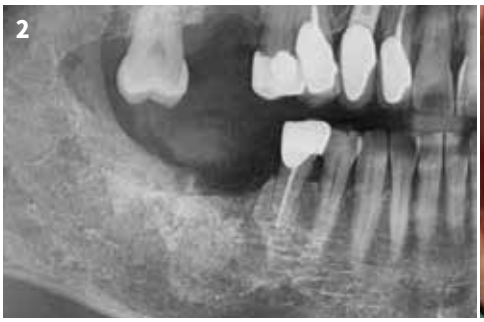
› After 3 months of using S1 bone graft material, a dense density of new bone was observed on radiographs.
› Biopsy results of the new bone formed in the implant placement site confirmed the new bone induction process
› Healthy new bone including blood vessels is formed even in the areas with large defects





Treatment Steps

Preoperative X-ray (before extraction of #46)



X-ray after extraction of mandibular left first molar

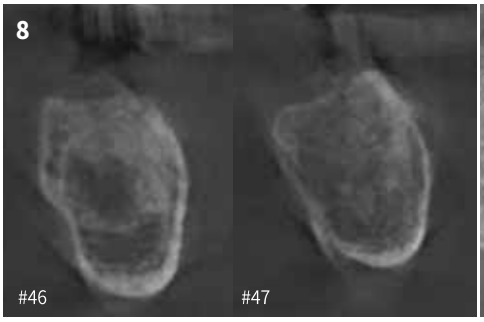
Intraoral photo after extraction of mandibular left first molar

Residual bone condition after soft tissue flap elevation

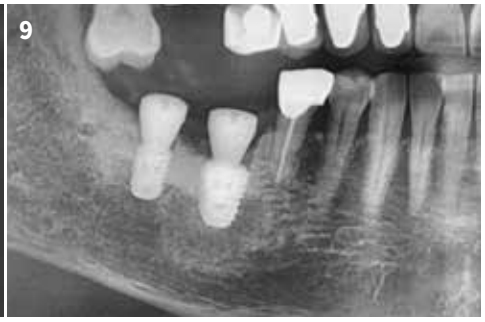
Application of S1 bone graft material (#46)

Application of S1 bone graft material (#47)

X-ray at 3 months after application of S1 bone graft materia



Postoperative CBCT cross-section



Implant placement at 4 months after S1 bone graft material use

Postoperative Intraoral photo after final prosthetics

Final prosthetics (#46, #47)

X-ray after final prosthetics

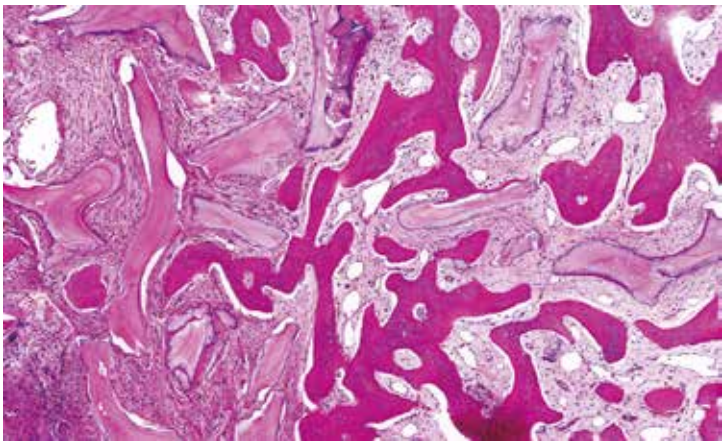
Biopsy time 4 months after S1 bone graft material use

Biopsy method Collect at 6mm depth by using Trephine bur from #36 implant placement area

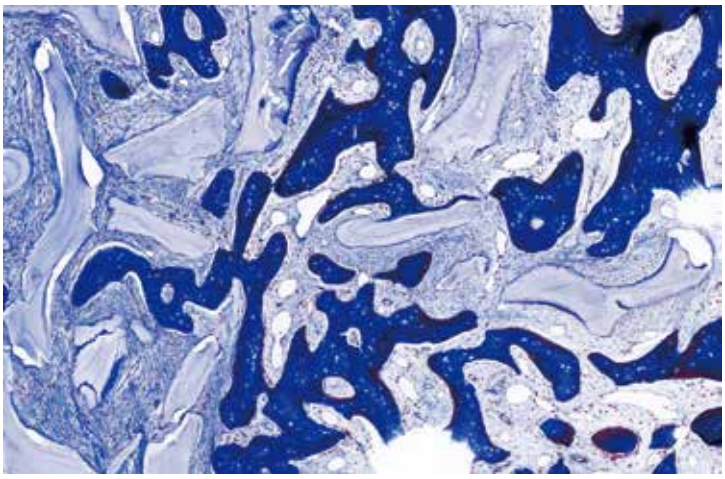
Findings

- **22.3% of the new bone area in the preservation of the socket with large defect, which is a meaningful value**
- **A pattern in which a lot of new bone is formed between the safe graft material and the bone graft material without any special inflammatory reaction**
- **Osseointegration expected to be excellent**
- **A pattern in which very healthy new bone including blood vessels is formed**

› **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 uncomfortable dentures and wanted implants.

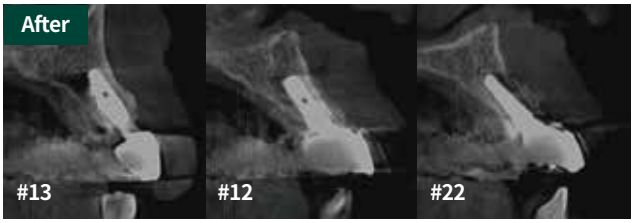
Products **S1 Bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes □ No

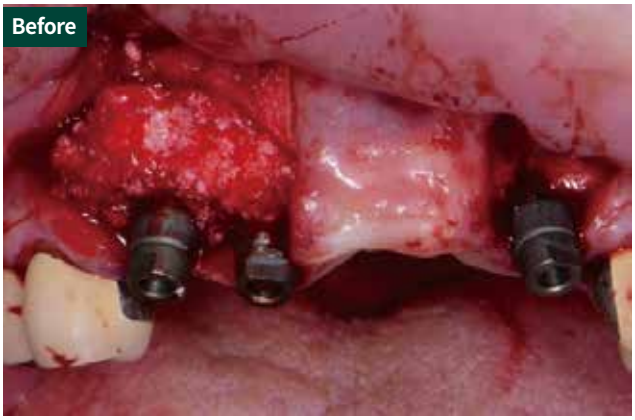
Objectives

› Extraction of residual canine teeth and implantation of implants in the anterior and posterior areas
› Bone graft due to resorption of labial side of anterior teeth

Conclusions

› Graft S1 bone into the thin labial of the anterior teeth, and visually observe the augmented alveolar bone and healed soft tissue after 3 months through CBCT

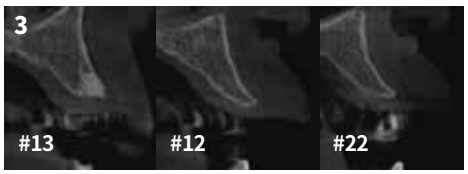




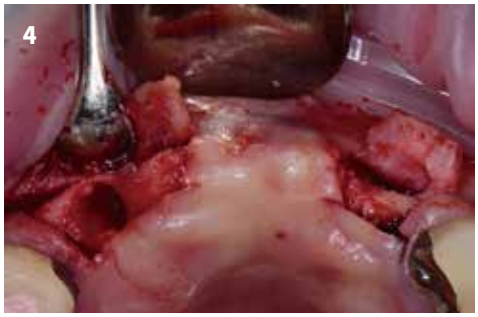
Treatment Steps

Preoperative Panorama

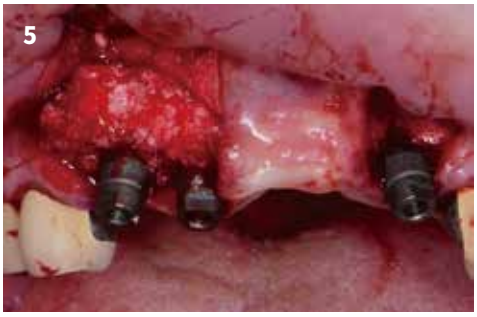
Preoperative IntraOral Photo



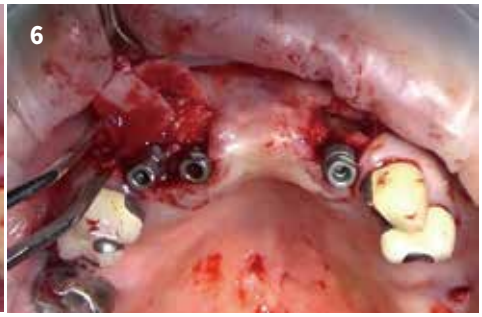
Preoperative CBCT



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

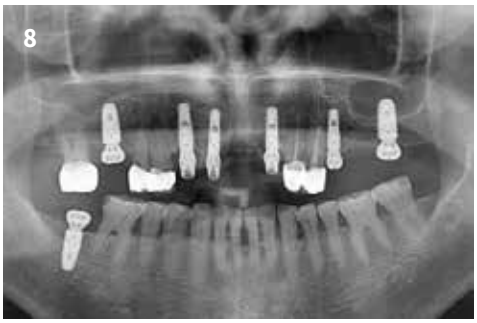


Transplantation of S1 bone graft material



Use of COLLA Membrane

Suture



Preoperative Panorama

Intraoral photograph of soft tissue healing 3 months after surgery

Final Panorama

Final Prosthesis

Postoperative CBCT

CLINICAL CASE 9

Minor Bone Augmentation without Membrane

Dr. Chingu kim

Initial assesment Edentulous Rt. Mx. premolar area of 67 year old female patient was not sufficient horizontal volume for implant placement. Onlay bone graft was required but patient did not want to get a Extensive GBR for her DM condition

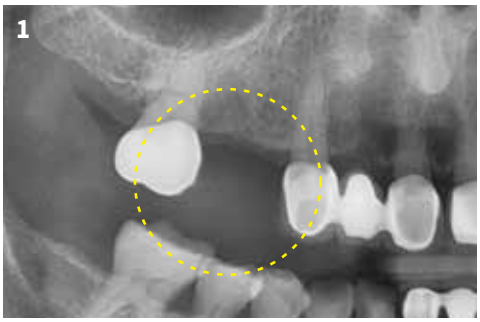
Products **S1 Bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

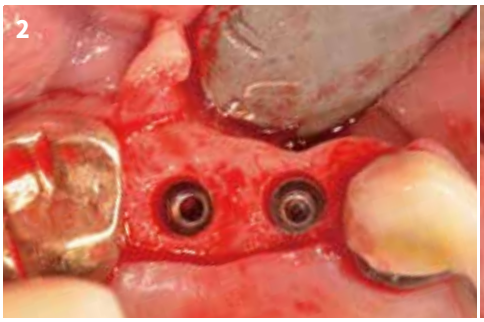
› After implant placement, buccal fenestration defect was found on 1st premolar implant. S1 bone was applied on buccal defect without membrane or additional fixation for space maintenance. Minor flap advancement and primary closure was done with only 5-0 nylon suture

Conclusions

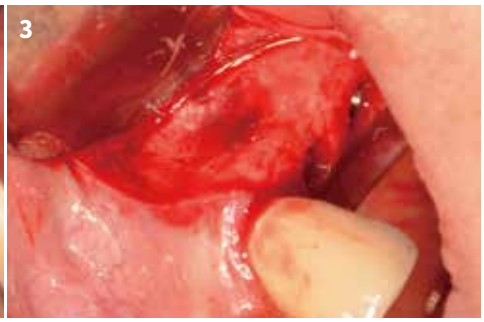
› Abundant bone regeneration was found after 3 Months, even regenerated bone covered over the cover screws. Regenerated buccal bone volume was stable over 8 months



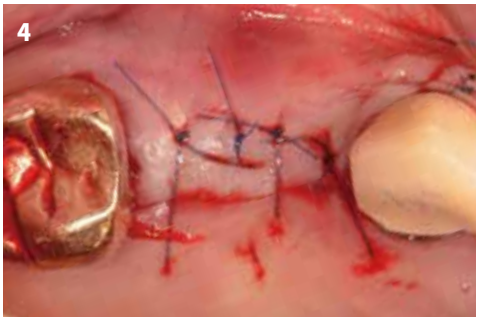
Preoperative x-ray



Implant placement

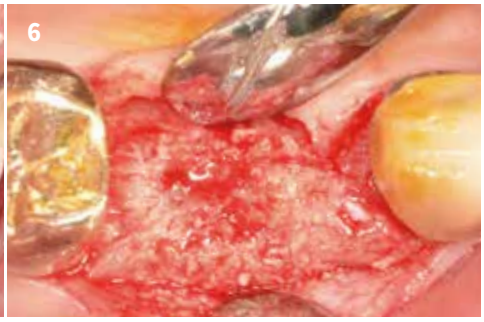


Fenestration defect



Suture

Post OP (3 weeks)



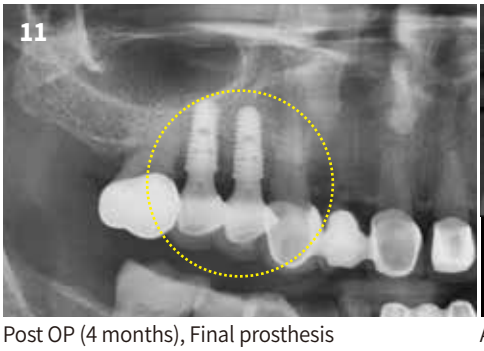
Post OP (3 months), 2nd OP

Post OP (3 months), 2nd OP

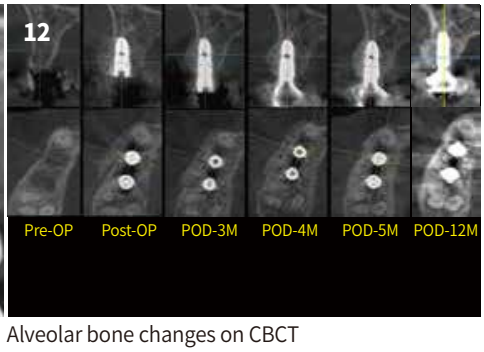
Post OP (3 months), 2nd OP

Post OP (4 months)

Post OP(4 months), Final proshesis



Post OP (4 months), Final prosthesis



Alveolar bone changes on CBCT

CLINICAL CASE 10

Moldable Augmentaion in Anterior Area

Dr. Ho Yeul Jang

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

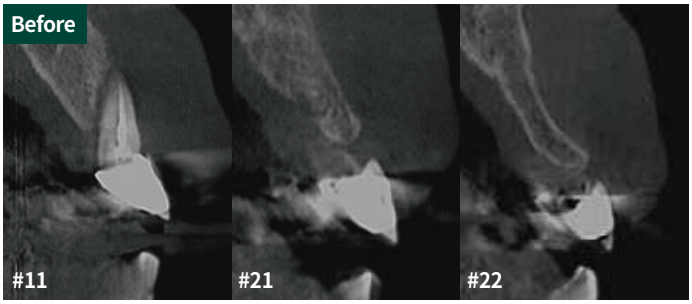
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

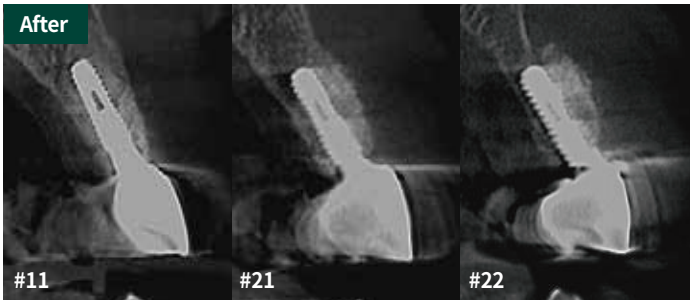
Objectives

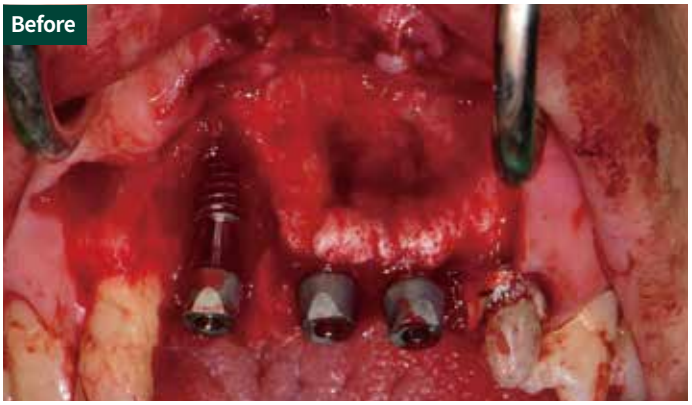
› In need for extensive alveolar bone augmentation as buccal width of alveolar bone is 3mm for extraction of residual maxillary teeth (#11, #21, #22) and removal of inflamed granulation tissue.
› When observed with naked eye, there is a defect in the form of fenestration and dehiscence of the alveolar bone after soft tissue elevation

Conclusions

› Observation of good healing of the soft tissue around bone graft material although the surgical area was wide.
› Upon CBCT, the new bone around the implant is naturally connected to the existing alveolar bone.
› Although no membrane was used, the position of the bone graft material was maintained stably, and bone augmentation surgery was successfully performed relatively easily.

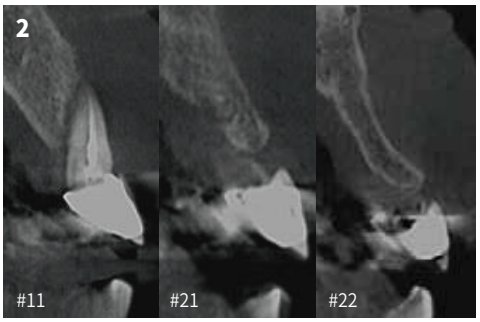






Treatment Steps

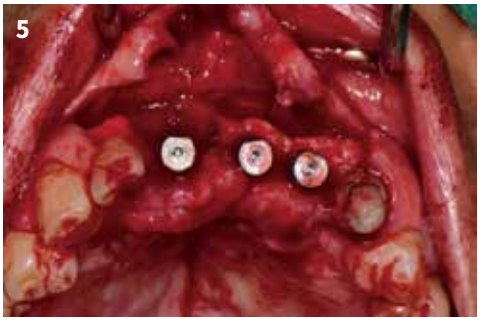
Preoperative panorama



Preoperative CBCT

Preoperative Intraoral photo

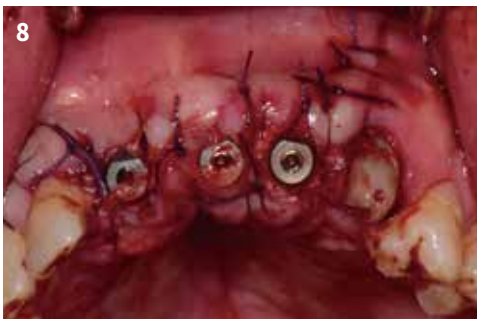
Implant placement at #11, #21, #22



Dehiscence defect and broad bone loss

Application of S1 bone graft material

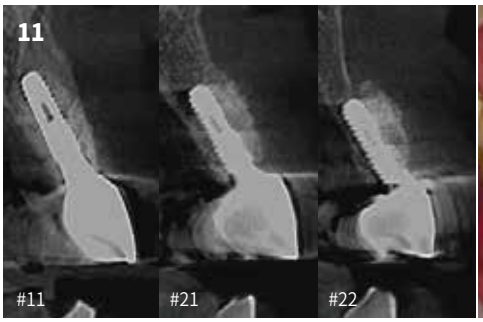
Application of S1 bone graft material



Suture

6 weeks after S1 graft

X-ray after final prosthetics



CBCT 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, and planned vertical bone augmentation by using bone graft material at the same time as implant placement in the mandibular left first major molar defect

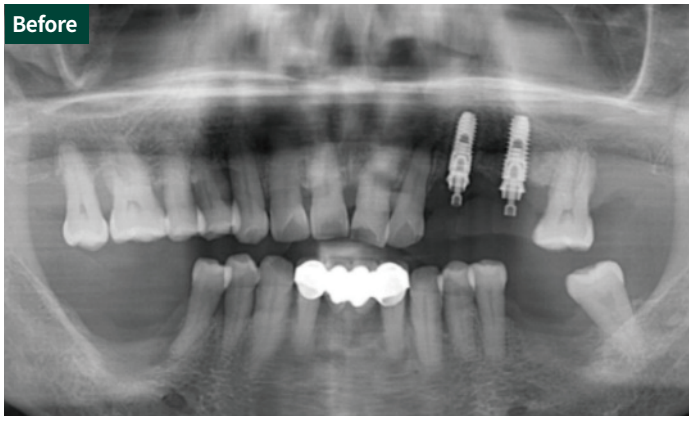
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

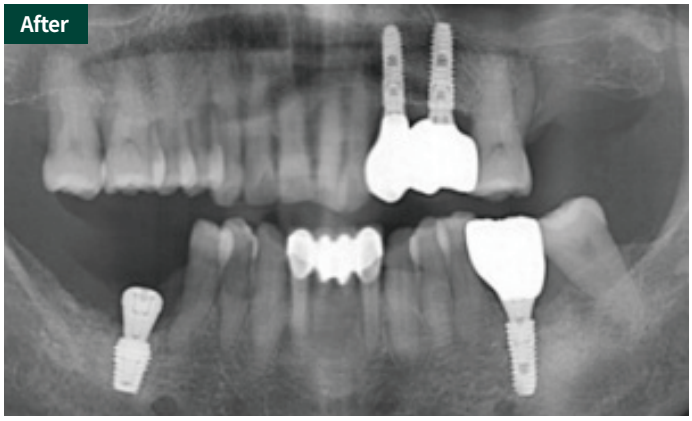
Objectives

› Defect area on #36 shows the form of vertical and horizontal alveolar resorption.
› Plan for vertical bone augmentation at the same time as implant placement in order to reduce the difference between the adjacent teeth and excessive bone level.

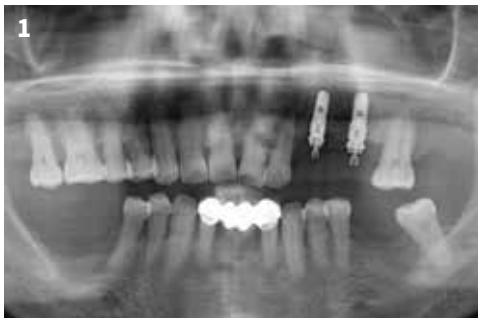
Conclusions

› Vertically augmented alveolar bone around the #36 implant can be confirmed on comparing the preoperative X-ray and postoperative X-ray of the final prosthesis placed 3 months after surgery.
› Because of the augmented alveolar bone and soft tissue, it was possible to fabricate a final prosthesis in harmony with the adjacent teeth, and it is expected to be advantageous in terms of future periodontal management.





Treatment Steps



Preoperative X-ray

Preoperative Intraoral photo

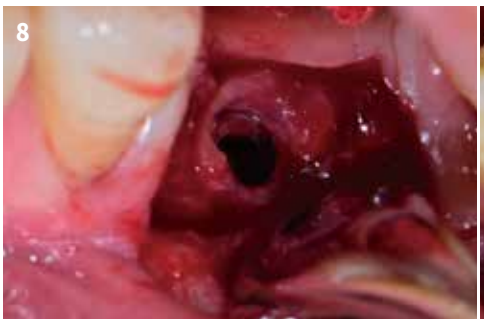
Implant placement after soft tissue flap elevation and inflammation curettage

Application of S1 bone graft material on implant bone loss area

Vertical and horizontal bone augmentation by using S1

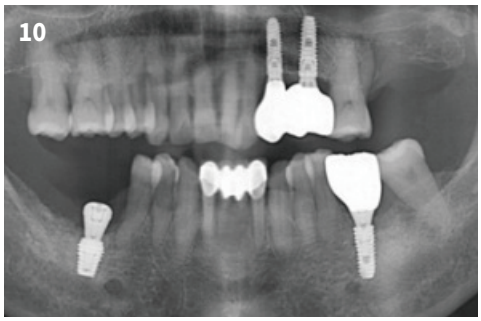
Postoperative X-ray

10 weeks after the surgery



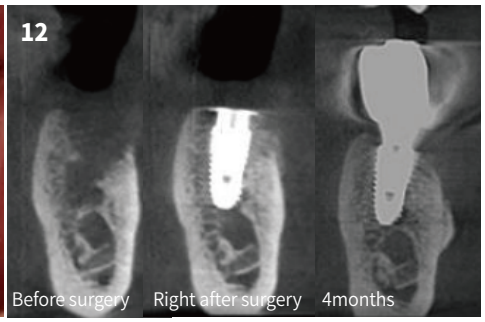
Observation of new bone formation upon second surgery at 10 weeks after 10 weeks of surgery

Abutment connection for prosthetics



Final Prosthetics delivery at 3 months after S1 use

Final Prosthetics delivery at 3 months after S1 use



Alveolar bone changes on CBCT

CLINICAL CASE 12

Periodontal Defect Management

Dr. Chingu kim

Initial assesment Advanced periodontal disease was found on Lt. mandible molar with buccal bone defect, 57 years old

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

Objectives

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

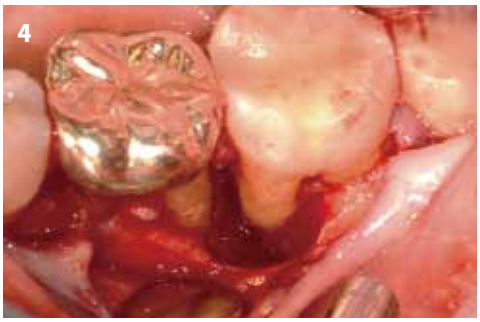
Conclusions

› Although the membrane was not used, the volume of the bone graft material was maintained well and the new bone was well formed on the CT scan.
› The process of new bone formation was observed through radiopacity on CBCT, and after 2 months, it merged with the surrounding bone tissue.

Preoperative x-ray

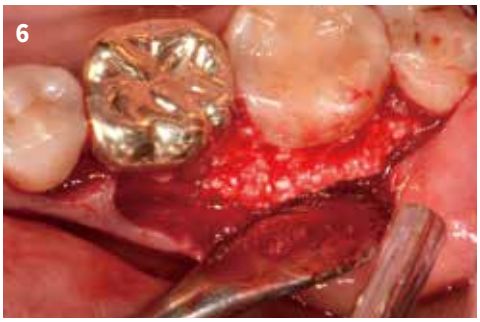
Flap operation

Inflammation curretage



Defect after removal of inflamed tissue

Ready to use S1 bone graft material



Application of S1 bone graft material

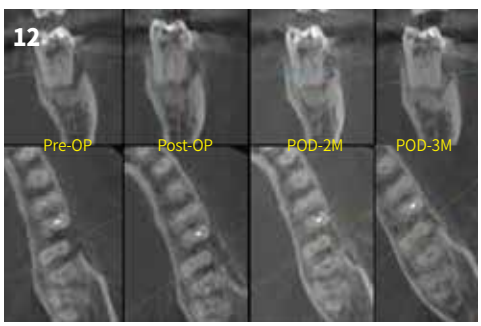
Preoperative x-ray

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 with little or no bone remaining at the site for implant placement. Performed bone augmentation of the tooth extraction area

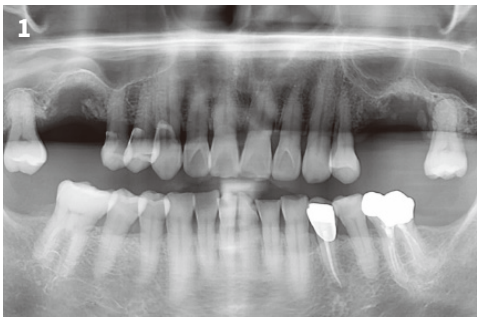
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (PRF) ☐ No

Objectives

› Alveolar bone condition after maxillary first molar
› Confirmation of extraction and defect area after soft tissue elevation
› S1 was hydrated by collecting PRF, and PRF membrane was applied

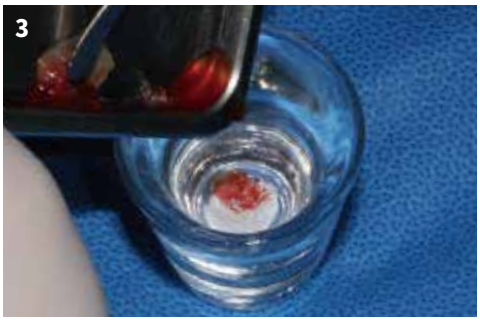
Conclusions

› Even though the defect area was large, the shape was well maintained without a membrane, and new bone was formed well.
› Good results were obtained only by using residual bone and S1 graft material without maxillary sinus elevation
› Bone formation was good in which the height of the marginal bone around the implant harmonizes with the adjacent teeth



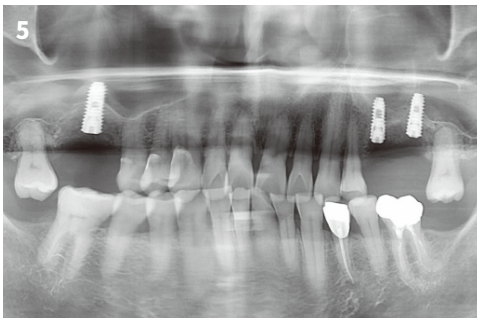
Preoperative X-ray

Preoperative Intraoral photo

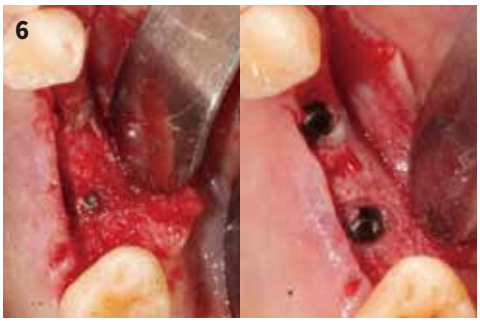


Hydration of S1 using PRF

Application of S1 bone graft material after implant placement

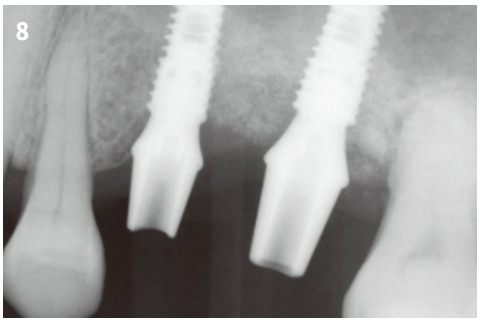


X-ray at 1 months after S1 bone graft material use

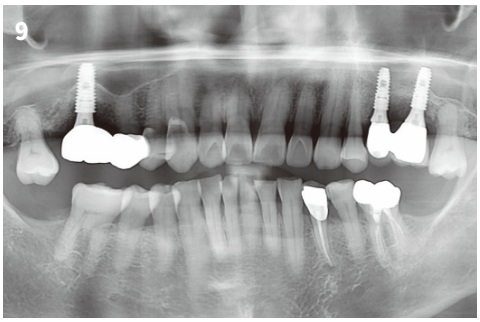


Bone formation upon second surgery at 7 months after placement

Abutment placement before prosthetics



X-ray after final prosthetics



X-ray at 10 months after S1 bone graft material use

After months of using S1 bone graft material

CLINICAL CASE 14

Dehiscence Defect in Anterior Area

Dr. Moon Seop Yum

Initial assesment Planning to have horizontal bone augmentation surgery with the remaining net lingual width of 2.8mm and implant placement plan, after extraction of the maxillary left and right lateral incisors

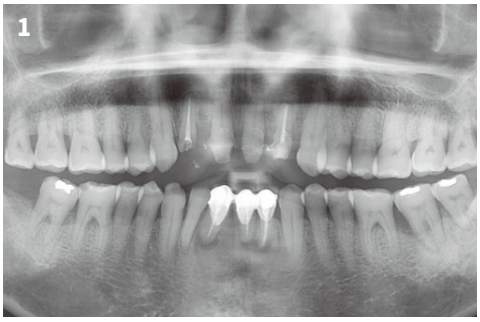
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

Objectives

› Extraction of maxillary left and right lateral incisors due to apical inflammation
› Horizontal bone augmentation was performed with a lingual width of 2.8 mm in the remaining bone.
› Application of S1 graft material after implant placement with a diameter of 3.5mm

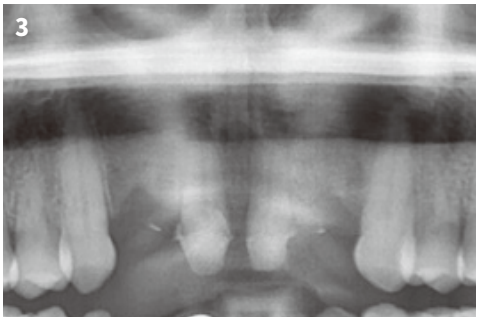
Conclusions

› Though the bone width of the defect part was insufficient and the range was wide, the desired shape was well made after using the S1 bone graft material, and the position of the graft material was also stably maintained.
› The position of S1 bone graft material was maintained without use of a membrane, triggering new bone regeneration
› Periodontal tissue in S1 Graft area is esthetic, and it healed stably



Preoperative X-ray

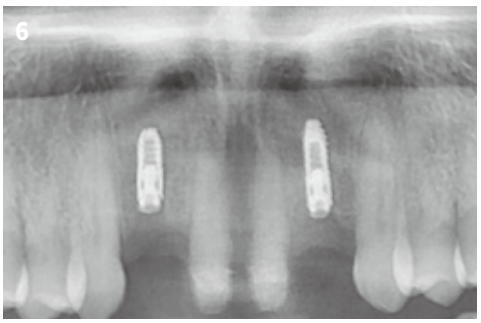
Preoperative Intraoral photo (#12~22 temporary crown)



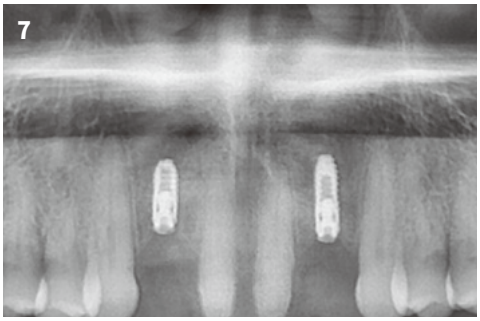
X-ray after extraction of maxillary left, right lateral incisor

Bone loss area in maxillary right lateral incisor

Molding of S1 bone graft material

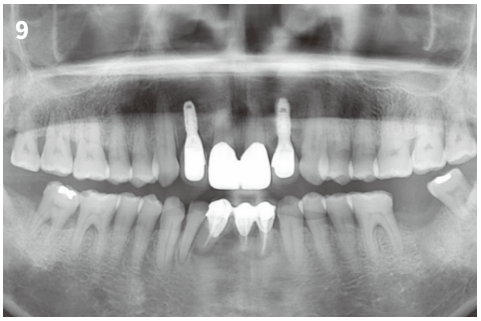


X-ray after implant placement and S1 bone graft material use



Bone formation pattern at 4 months after S1 bone graft material use

Final prosthetics



X-ray at 11 months after S1 use

CLINICAL CASE 15

Open Socket Management in Posterior Area

Dr. Ho Yeul Jang

Initial assesment Periodontitis in maxillary right 1st and 2nd premolar and 1st molar areas has progressed for long time with inflammation on the surrounding alveolar bone. There is significant alveolar bone loss on CBCT. Patient wanted implant treatment.

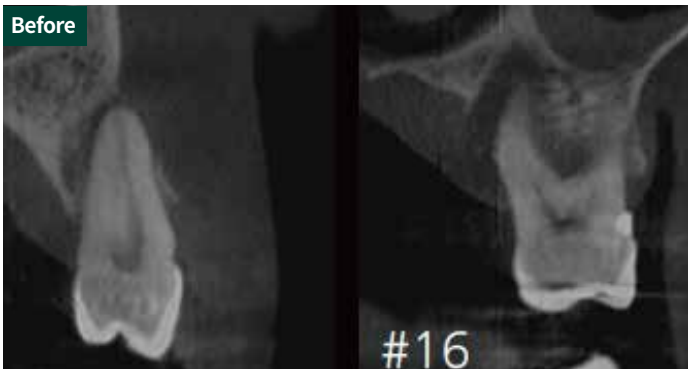
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

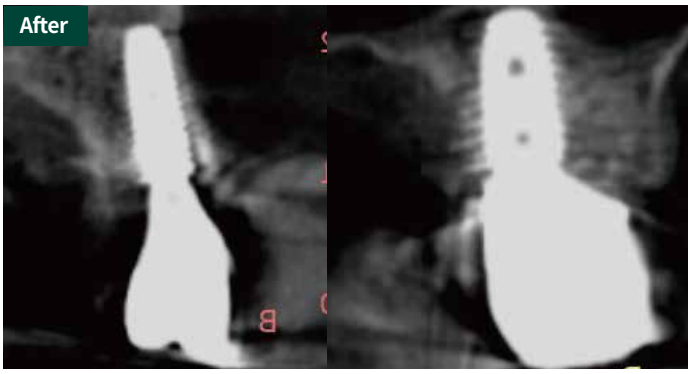
Objectives

› Confirmation of alveolar bone loss and remaining bone morphology due to periodontitis in the maxillary right 1st and 2nd premolar and 1st molar area
› Immediate implant placement after #14, #16 extraction and 3-unit prosthesis production scheduled
› S1 bone graft material will be used for the bone defect of in the extraction site

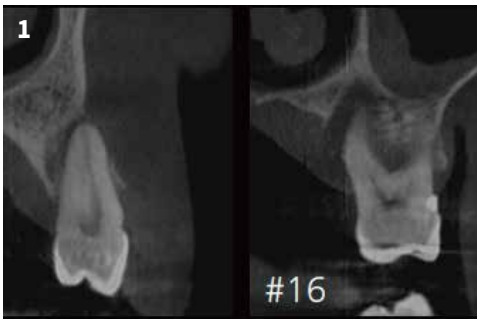
Conclusions

› Though it was sutured in an open wound state immediately after implant placement with bone graft, secondary healing occurred without significant loss of S1 graft material.
› In consideration of soft tissue contraction and separation of bone graft material particles when implanted immediately after extraction, transmucosal bone graft that grafts bone graft material up to the top of the soft tissue.
› Well-formed new bone around the implant was observed on the X-ray at 3 months after surgery.





Treatment Steps



Inflammation area and alveolar bone shape on preoperative CBCT

Preoperative Intraoral photo

Confirmation of affected bone loss area after extraction of #14, #15, #16

Hydration of S1 bone graft material

Implant placement after S1 graft on broad bone loss area

Implant placement after S1 graft on broad bone loss area

Suture

Intraoral photo at 2 months after surgery

Final prosthetics

X-ray at 3 months after S1 bone graft material use

CBCT at 3 months after S1 bone graft material use

CLINICAL CASE 16

Narrow Rigde Augmentation in Anterior Area

Dr. Choong Noh

Initial assesment Visited with peri-implantitis detected in another clinic. After removing the existing implant, S1 bone graft material was used for 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 mandibular anterior (#31)
› Horizontal bone augmentation surgery performed on the labial side of the residual bone

Conclusions

› Final prosthetic placement completed at 3 months after S1 implantation
› Aesthetic periodontal tissue detected after second implant placement

Preoperative X-ray

Preoperative Intraoral photo

Application of S1 bone graft material for horizontal bone augmentation after implant (1 stage surgery)

Suture

Abutment placement for prosthetics at 3 months after S1 placement

Abutment placement before prosthetics

Gingiva tissue state

Final prosthetics

X-ray after final prosthetics

CLINICAL CASE 17

Easy Augmentation of Dehiscence Defect

Prof. Dong Seok Sohn

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

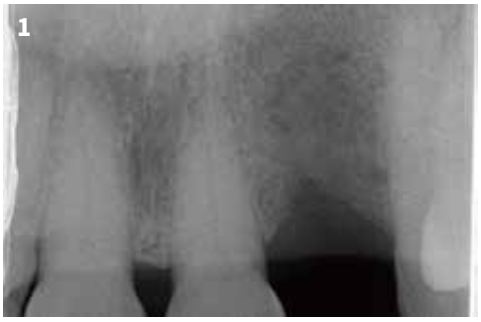
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (CGF) ☐No

Objectives

› Labial resorption of surrounding alveolar bone after extraction of the maxillary left lateral incisor.
› Horizontal bone augmentation was planned in consideration of aesthetics, and bone graft material is needed to increase the height of the alveolar bone in the marginal area. With the consent of the patient, blood was collected to process CGF that would be used as membrane.

Conclusions

› Despite the lack of bone width in the defect area and in the anatomical structure that made it difficult to maintain the graft material, the desired shape could be easily realized due to the moldable characteristics of S1.
› The bone graft material position was stably maintained without the use of a membrane, which helps to maintain the shape.



Preoperative Intraoral photo of alveolar bone in the defect area

Incision and flap elevation

Dehiscence defect condition after implant placement

Application of S1 bone graft material

Molding to fit the surrounding alveolar bone shape

Formation of membrane by using CGF

Postoperative X-ray

CLINICAL CASE 18

Simplified Vertical Augmentation for Advanced Bone Resorption

Prof. Dong Seok Sohn

Initial assesment The patient, with extracted 2nd premolar and 1st and 2nd molar at mandibular right posterior region due to severe periodontitis, is planning to receive implant placement along with vertical bone augmentation of the defect area.

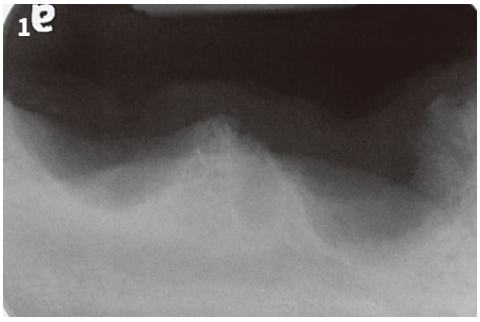
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (COLLA) ☐ No

Objectives

› The form of the residual bone looks very irregular after removing teeth and the inflammatory granulation tissue due to severe periodontitis, and, accordingly, this situation requires vertical bone augmentation.
› Induct new bone regeneration by using the S1 bone graft material after implant placement on the #45, #46, #47 regions

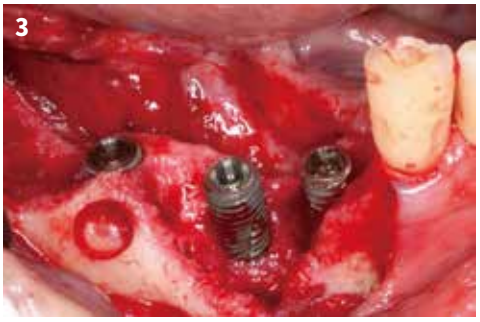
Conclusions

› Though there is a wide range of bone loss at defect area, it can stably apply S1 bone graft material to the desired region.
› Without using a non-absorbable shape-fixing membrane, the location of the S1 bone graft material was retained, which helped the regeneration of a new bone.
› The periodontal tissue of the S1 graft area was placed esthetically and stably.



Preoperative image of the alveolar bone in the defect area

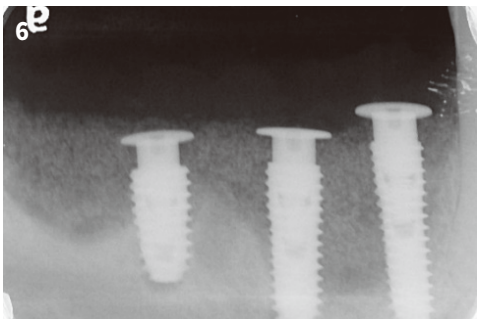
Incision and flap elevation



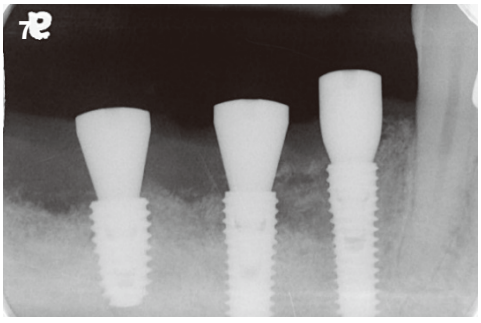
Alveolar bone defect after implant placement

Application of the S1 bone graft material on the bone defect area

Use of COLLA membrane for vertical bone augmentation



Postoperative X-ray



X-ray at 4 months after bone graft material use

CLINICAL CASE 19

Dough Staged Sticky Bone Graft

Prof. Dong Seok Sohn

Initial assesment A 54-year-old woman visited for the purpose of reconstruction of the mandibular right 2nd premolar and 1st molar defects

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

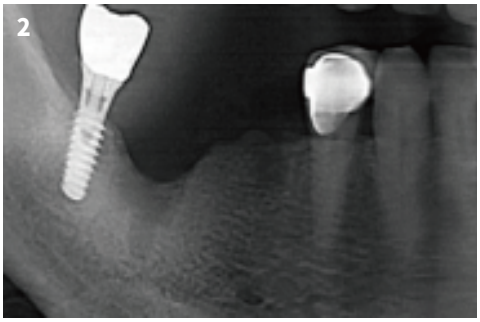
Objectives

› As the height of the alveolar bone in the mandibular left defect area is not constant, the shape of the marginal area must be reconstructed.
› Intramarrow penetration is conducted to help the bone graft material create new blood vessels as plenty of time has passed since the extraction, while the remaining bone surface is healed with a dense bone.

Conclusions

› On radiographs 3 months after surgery, it was observed that the shape of the marginal bone was harmoniously connected with the adjacent teeth, and the new bone density was also satisfactory.
› Confirmed that the moldable property of S1 is applied as an advantage in maintaining the 1 wall defect of the distal of the #46 implant placement site.

Postoperative X-ray

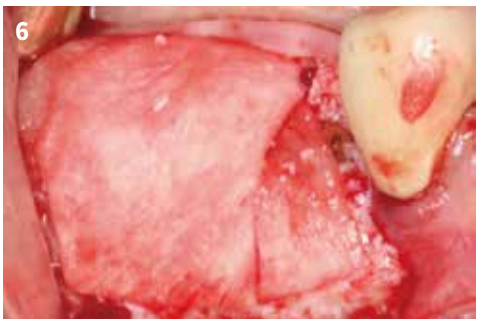


Preoperative image of the alveolar bone in the defect area

Incision and flap elevation

Alveolar bone defect after implant placement

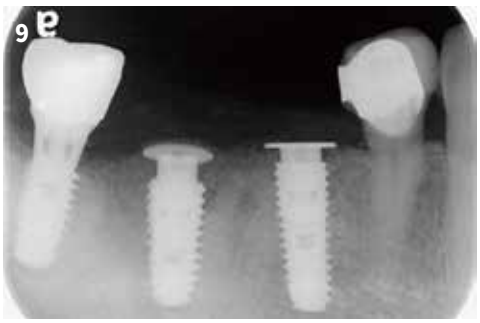
Application of S1 on the bone defect area



Formation of membrane by using COLLA

Final coverage using CGF

Suture



X-ray at 3 months after surgery

CLINICAL CASE 20

Immediate Implant Placement

Dr. Ho Yeul Jang

Initial assesment Visited for the reason that the maxillary left central incisor was shaking

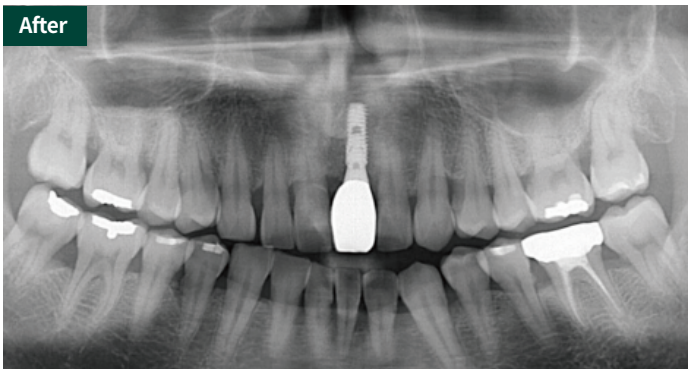
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (COLLA) ☐No

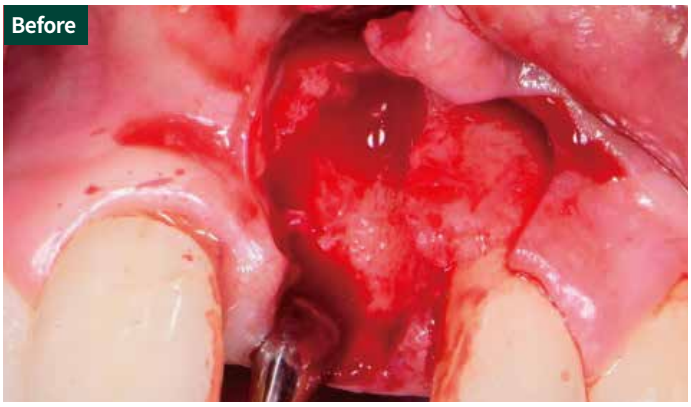
Objectives

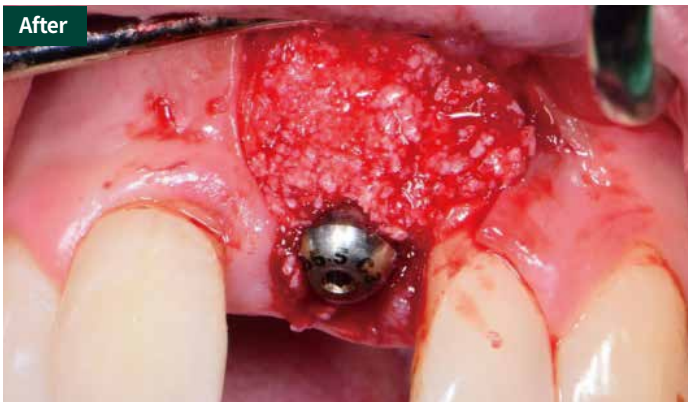
› Immediate implant placement was performed to preserve the alveolar bone and soft tissue.
› Labial bone was lost, so after dehiscence defect surgery, the incision was minimized in consideration of edema.

Conclusions

› Used S1 and COLLA, the preservation of periodontal tissue was better than before extraction, and esthetically satisfactory results were obtained.
› The procedure was performed by minimizing the periodontal tissue incision, and the membrane was fixed well, resulting in a good prognosis with solid sutures.



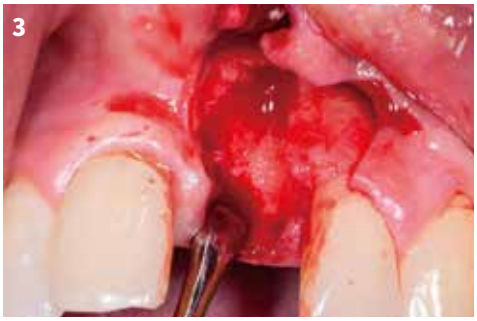




Treatment Steps

Postoperative 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 at 2 months after surgery

Final prosthetics connection at 3 months after surgery

Intraoral photo after prosthetics

X-ray at 3 months after surgery

CLINICAL CASE 21

Easy 3D Rigde Augmentation

Prof. Dong Seok Sohn

Initial assesment A 75-year-old woman visited for the purpose of restoration of the defect area in the mandibular right 1st premolar and molar

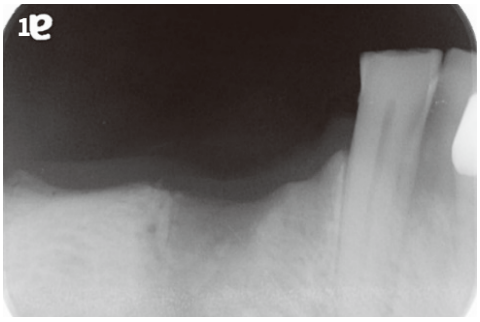
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes (CGF) ☐No

Objectives

› A socket-shaped, 3-wall defect was found in the #44 tooth defect after soft tissue elevation during surgery
› Vertical bone augmentation was performed on #44~46 using S1 bone graft material

Conclusions

› S1 bone graft material can be stably applied to the desired area, though the defect area bone width was narrow and the defect area was wide
› After surgery, it was observed that the shape of the marginal bone was harmoniously connected with the adjacent teeth, and new bone density was also satisfactory.

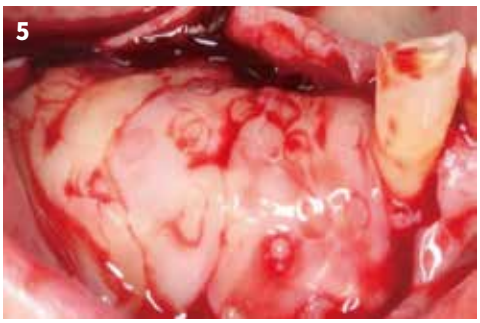


Alveolar bone shape in the defect area in #44, #45, #46, #47

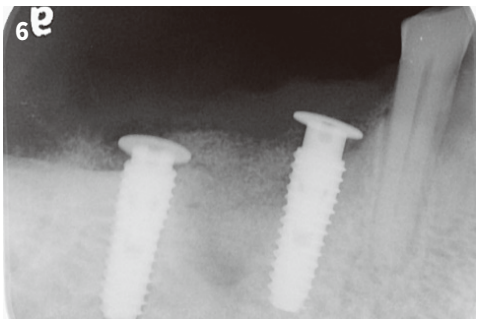
Implant placement

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

Postoperative 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 prosthetics connection at 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 who was using partial mandibular anterior dentures visited for the production of a fixed prosthesis. Planned to perform narrowed alveolar bone augmentation by minimizing the incision area during surgery.

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

Postoperative X-ray

Preoperative Intraoral photo

Application of COLLA membrane after incision (#42)

Application of COLLA membrane after incision (#42)

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

Suture

Intraoral photo after prosthetics

Intraoral photo after prosthetics

X-ray 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 second premolar and molar area of the mandible. A long period of time has passed after tooth extraction, and residual bone resorption has progressed in the buccal direction. Planned to perform horizontal guided bone regeneration after implant placement

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

Postoperative x-ray (#45, #46, #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 restoration of the maxillary left canine loss. 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 0.15g of S1 bone graft material

Molding of S1 bone graft material to fit defect area

Application of COLLA membrane

Suture

Intraoral photo after prosthetics

Final prosthetics

CLINICAL CASE 26

Labial Fenestration in Lower Anterior area

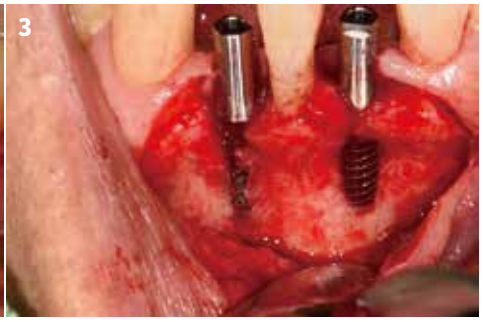
Dr. Choong Noh

Initial assesment Visited for restoration of the missing teeth of the mandibular left central incisor and the right lateral incisor. Planned to perform guided bone regeneration at the same time as implant placement due to the loss of the buccal width of the residual bone in the anterior region.

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

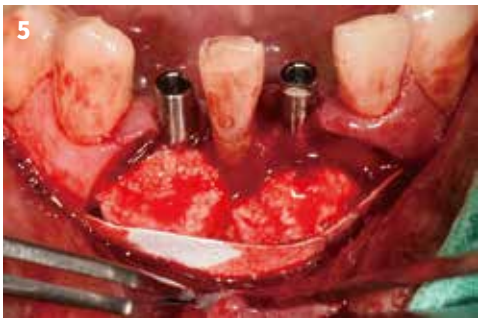
Preoperative Intraoral photo (#31, #42)

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, Inflammation next to prosthesis in #37, the implant was placed 10 years ago

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

Objectives

› Check the bone defect around the implant in #37 (the left mandibular second molar) in panorama
› Treatment with laser and filling the bone defect with S1

Conclusions

› Removing granuloma on the implant surface and filling in bone defect using S1
› S1 has been well attached to the implant surface
› In the future, new bone is expected to be formed well between implant threads.

Preoperative X-ray (#37)

Incision by Laser

Cyst and inflamantion Tissue

Application of S1 bone graft material to the bone defect area

Postoperative x-ray after using S1 bone graft material

CLINICAL CASE 28

Extraction socket management

Dr. Alesio Bocari

Initial assesment #27 Patient's back and joint disease due to vertical root fracture (VRF)

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

Objectives

› After extraction of #27 tooth with vertical root fracture (VRF), immediate implant placement is conducted after removing inflammation, and S1 is applied.

Conclusions

› In #27, Alveolar Ridge Preservation (ARP) was performed using S1 without membrane. After the surgery, the soft tissue takes to heal well.
› After 1 year, it was observed that it was very stable without resorption of marginal bone.

Preoperative (#27)

Socket size measurement 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 for chronic inflammation and tooth mobility of the mandibular left first molar teeth and mandibular right first molar teeth

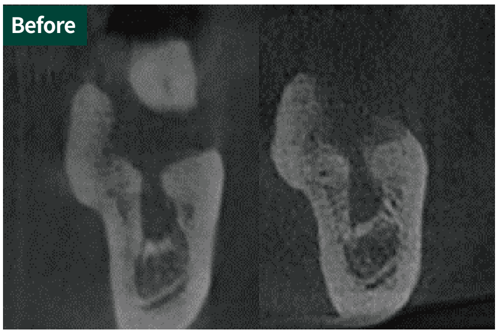
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

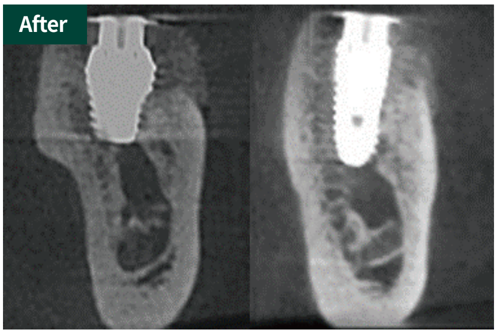
Objectives

› Extraction plan with inflammation and vertical mobility of both first molar teeth
› Observation of 3 months after removal of inflammatory tissue after tooth extraction

Conclusions

› First molars on both sides of the mandibular were close to the nerve and had a wide range of bone defects, but the stability of new bone regeneration and healing was confirmed
› Vertical bone augmentation was performed without a membrane, and as a result of CBCT confirmation, stable alveolar bone shape was maintained and new bone regeneration was good.

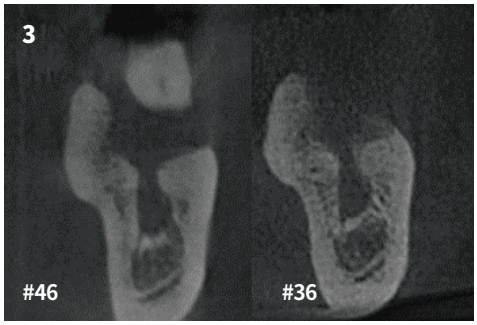




Treatment Steps

3 months after extraction of both mandibular first molar teeth

IntraOral photo of left mandibular first molar teeth before surgery



Preoperative CBCT of mandibular right first molar teeth and mandibular left first molar teeth

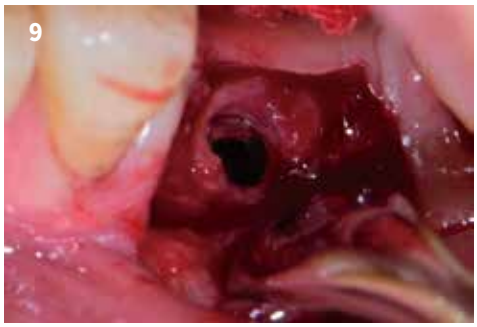
Mandibular left first molar tooth incision

Mandibular left first molar tooth implantation of implant

Transplantation of S1 bone graft material shaped according to the size of the mandibular left first molar tooth defect

Suture

Postoperative (4 weeks)



Postoperative (4 weeks)

Mandibular left first molar tooth 10 weeks after Healing Abutment tightened and sutured

Mandibular left first molar final prosthesis

IntraOral photo of right mandibular first molar tooth before surgery

Treatment Steps

Right mandibular first molar gum incision

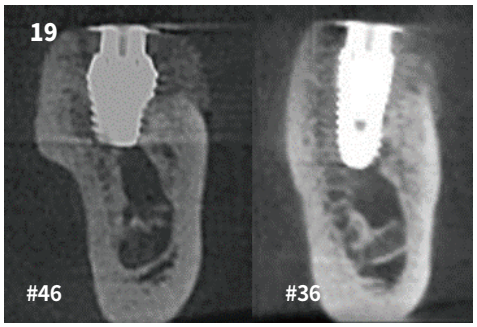
Right mandibular first molar implant placement

Transplantation of S1 bone graft material shaped according to the size of the defect in the right mandibular first molar

Suture

Post OP (2 months)

2nd surgery



CBCT after bilateral mandibular first molar surgery

Mandibular right first molar prosthesis

Mandibular right first molar prosthesis

CLINICAL CASE 30

Immediate implant placement

Dr. Ho Yeul Jang

Initial assesment Visited for a fractured maxillary central incision that had undergone nerve treatment

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

Objectives

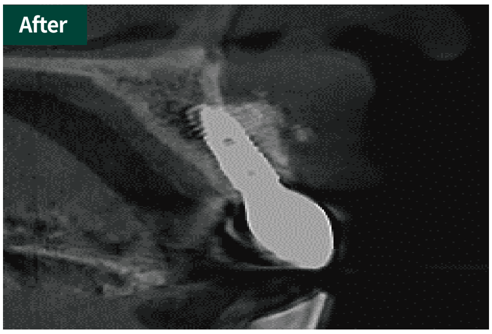
› Immediate implant placement after extraction of fractured maxillary central incisor

› Bone grafting plan with extraction socket and thin labial bone

Conclusions

› Bone grafting using Tunneling technique on the thin Labial Bone in the apical region of the maxillary central incisor

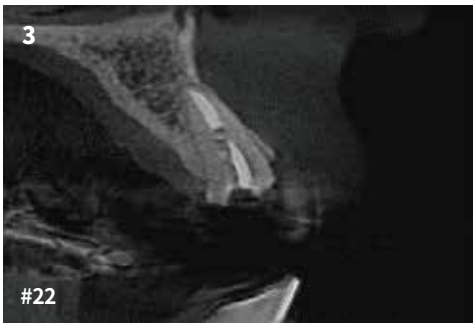
› After 3 months of surgery, even without the membrane, it was observed that the bone was not absorbed and the shape of the bone was maintained well.



Treatment Steps

Preoperative Panorama

Preoperative intraoral photo



Preoperative CBCT

After the extraction

S1 bone graft

Implant placement in the optimal position

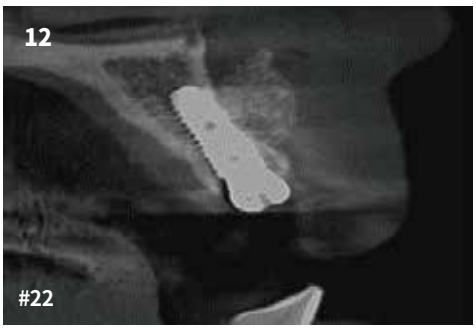
Tunneling technique _ soft tissue incision

Tunneling technique _ bone graft material in the apical region

Tunneling technique _Suture

Postoperative Panorama

1 month after surgery



CBCT after surgery

Treatment Steps

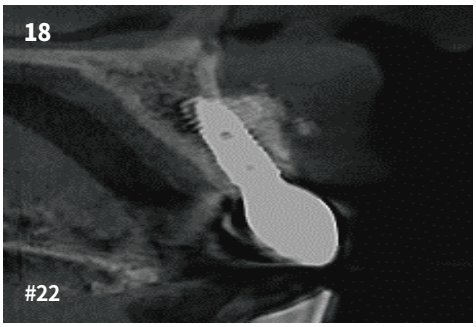
Soft tissue healing 2 months after surgery

X-ray picture 2 months after surgery

Soft tissue healing 3 months after surgery

Final Prosthesis Panorama

Maxillary left lateral incisor final prosthesis



Final Prosthesis CBCT

CLINICAL CASE 31

Immediate implant placement

Dr. Ho Yeul Jang

Initial assesment Visited for complaining of discomfort due to inflammation and mobility of the bridge teeth prosthesis of the maxillary central incisor and maxillary lateral incisors

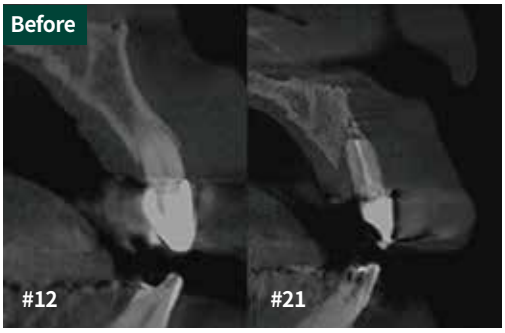
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

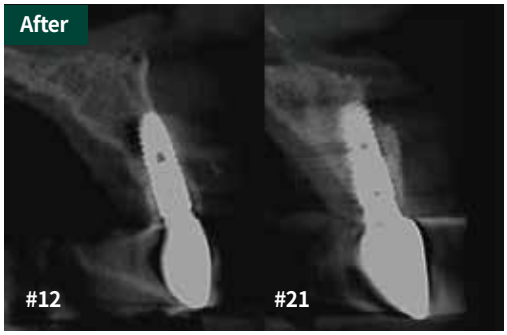
Objectives

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

Conclusions

› Bone grafting and immediate implant placement by removing the granulation tissue of the maxillary central incisors and maxillary lateral incisors
› After 3 months of surgery, even without the membrane, it was observed that the gum and bone graft shape volume was maintained well

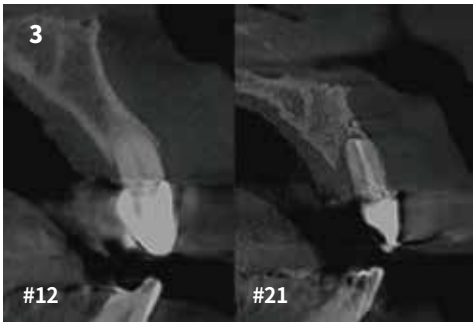




Treatment Steps

Preoperative Panorama

Preoperative Oral photo



Preoperative CBCT

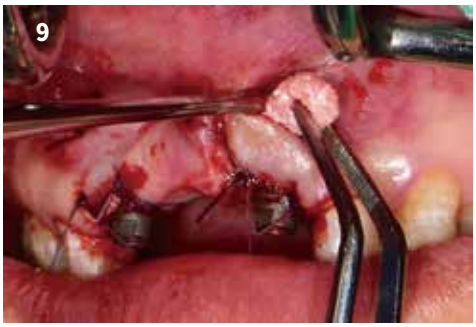
Extraction

Modeled S1 bone graft material

S1 bone graft

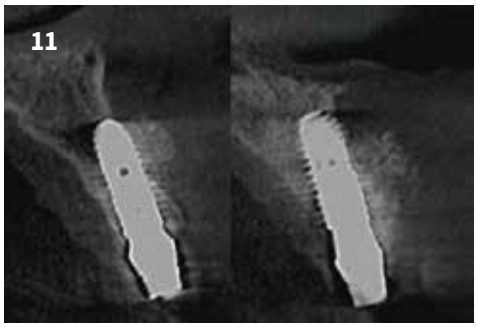
Implant placement in the optimal position

Suture and bone graft with Tunneling technique on the apical part of the upper right lateral incisor



Bone grafting using Tunneling technique on the dentate end of the left maxillary central incisor

Postoperative Panorama



Postoperative CBCT

Immediate loading

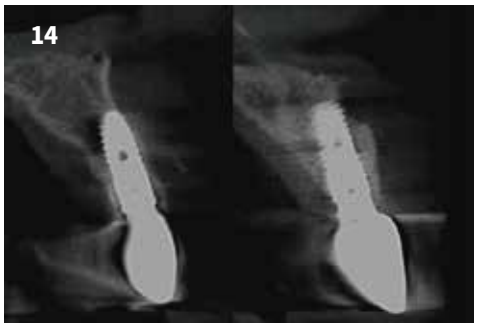
Treatment Steps

Post OP (6 weeks)

Post OP (3 months)

Final Prosthesis

Final Prosthesis Panorama



Final Prosthesis CBCT

CLINICAL CASE 32

Sinus augmentation

Dr. Ho Yeul Jang

Initial assesment Visited for maxillary posterior implant placement

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

Objectives

› Maxillary inflammation on the left maxillary first molar and left maxillary second molar requires removal of inflammation
› Planning for maxillary sinus lift and immediate implant placement by closing the sinus perforation area with PRF

Conclusions

› Inflammation of the left maxillary molar is removed with a syringe
› 3 months after the surgery, the size of inflammation decreased, new bone regeneration and implants were stably maintained.
› 1 year, 1 year and 6 months after surgery, no inflammatory changes, and observed mature bone tissue.

Preoperative Panorama

Preoperative intraoral photo

Preoperative CBCT

Removal of inflammation using a syringe

Hydration and mixing of S1 powder bone graft material

S1 bone graft material placed on maxillary left 1st molar and maxillary left 2nd molar

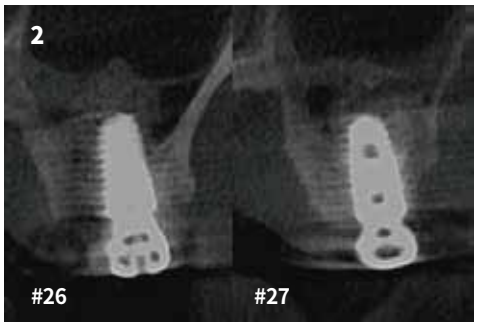
Implant placement on maxillary left 1st molar and maxillary left 2nd molar

Healing Abutment Fastening

Postoperative Panorama

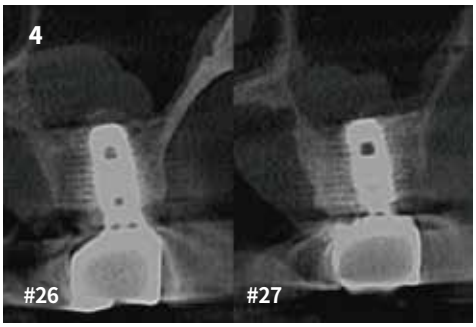
Treatment Steps

Final prosthesis after 3 months

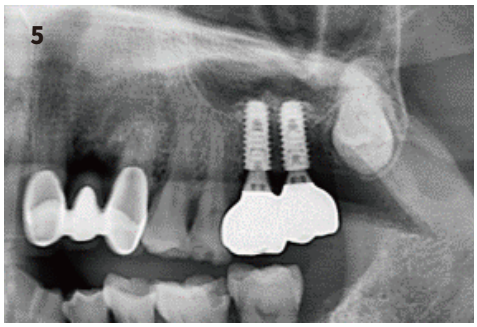


Postoperative CBCT

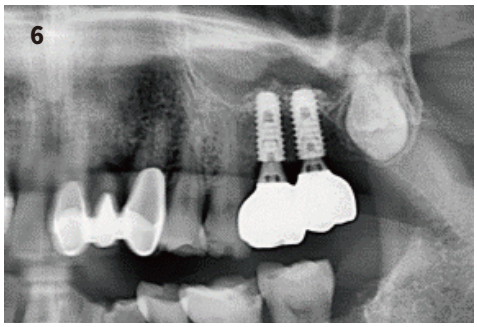
Final Prosthesis CBCT



Final prosthesis CBCT



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 visiting for rapid reconstruction of the food impaction, mobility, smell of inflammation on mandibular right first molar.

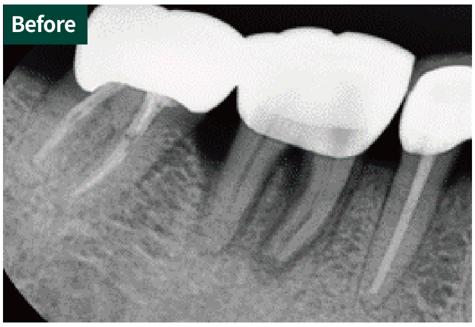
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ☐ Yes ■ No

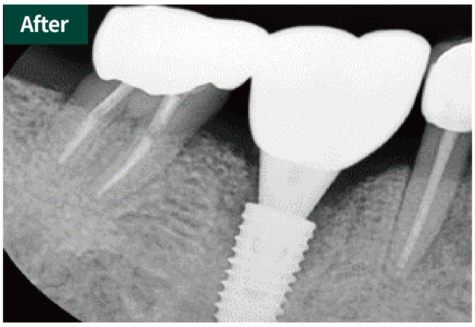
Objectives

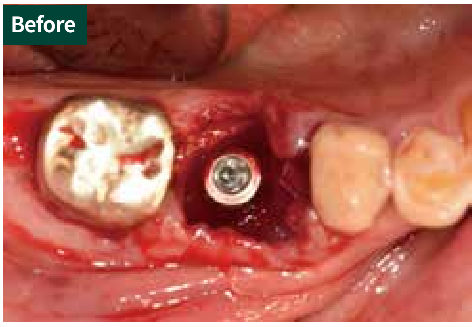
› Immediate implant placement and bone grafting plan after tooth extraction as the the vertical mobility of the mandibular first molar is 3 degrees are exist.

Conclusions

› After extraction of the mandibular right first molar, inflammation was removed to confirm the thin buccal-lingual cortical bone and large defect.
› Bone graft was performed after implant placement due to a large defect in extraction site
› After 3 months of implant placement, the final prosthesis was completed, and shape maintenance, osseointegration, and stable healing of gingival soft tissue were observed.

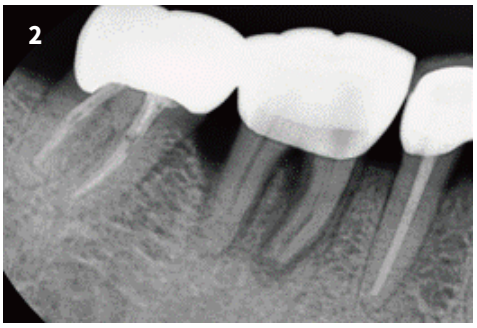






Treatment Steps

Preoperative Panorama



Preoperative X-ray

Preoperative intraoral photo

extraction

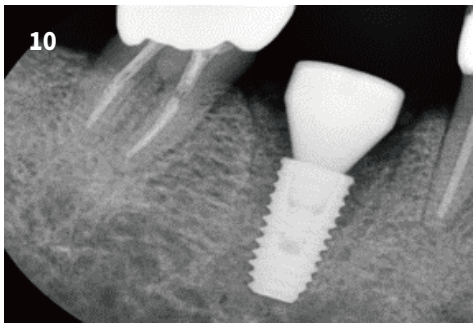
immediate implant placement

Placement of S1 bone graft material that has moldable characteristics

Insertion of bone graft material

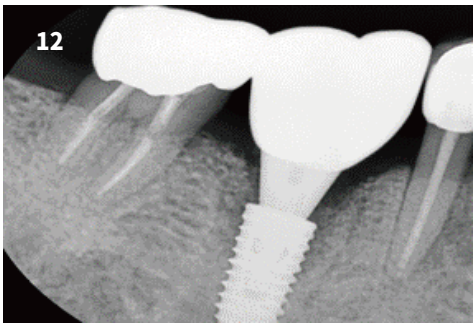
suture

Post OP (4 weeks)



Post OP (4 weeks) X-ray

Post OP (3 months)



Post OP (3 months) X-ray

CLINICAL CASE 34

Minor bone augmentation (Maxillary sinus lift revision surgery)

Dr. Young Jin Cho

Initial assesment A 57-year-old woman, needed implant and inflammatory tissue removal because bone regeneration was not successful after the right maxillary sinus lift surgery due to inflammation
Planning for implant placement after follow-up the result of reoperation for maxillary sinus elevation

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

Objectives

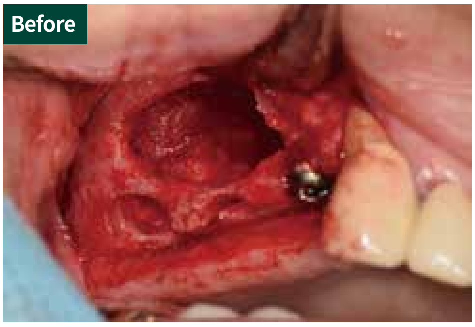
› remove the implant and granulation tissue due to the bone on the right side of the maxilla was not regenerated and alveolar bone destruction because of Maxillary sinus lift surgery inflammation
› Planning for new bone regeneration and implant placement using sticky bone graft material S1 bone for the large defect in the maxillary sinus.

Conclusions

› When removing granulation tissue due to maxillary sinus lift infection, perforation occurred, so closing with a membrane, and S1 bone graft was performed in the large defect.
› Although it was not an easy case for perforation of the maxillary sinus and large defects, the use of sticky bone made it possible to easily implement the shape of the defect without causing bone graft material particle separation and infection.
› 6 months after maxillary sinus elevation and implant placement in the large defect, maxillary sinus inflammation was remarkably reduced, and bone level and implant fixation were observed to be stably maintained.


Before


After


Before


After

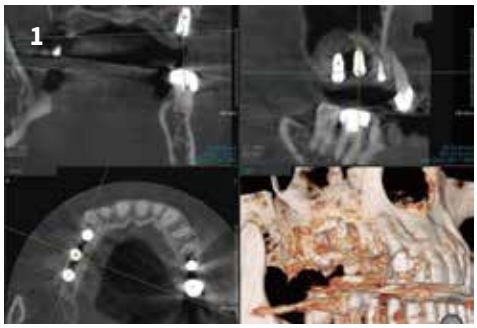

Before


After

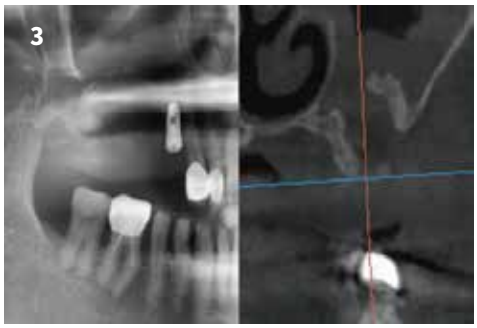

Before


After

Treatment Steps



Previous) Maxillary right 1st molar, maxillary right 2nd molar Sinus lift CBCT



implant removal

Confirmation of large defects after maxillary granulation tissue removal

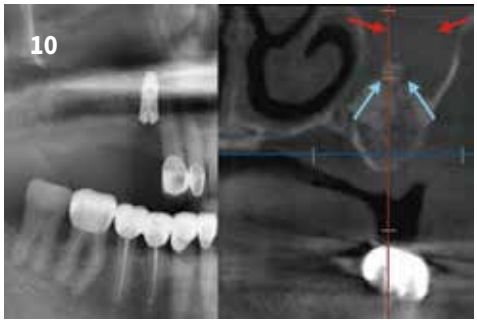
Close perforated site in the maxillary sinus by membrane

S1 Bone preparation

Molding of bone graft materials to fit large defects

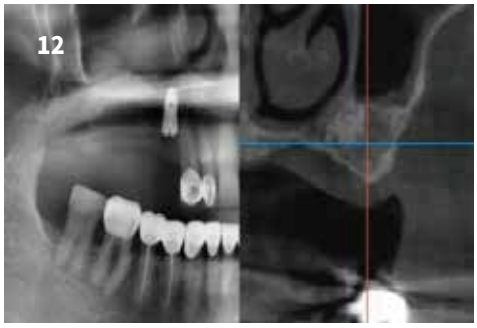
Maxillary sinus elevation bone graft revision surgery

Suture



CBCT confirmed that the dispersion of the bone graft material is limited 4 days after surgery

Oral photo showing bone regeneration through gum incision



Post OP (6 months)

implant placement

Check gingival soft tissue healing

Final prosthesis

CLINICAL CASE 35

Horizontal Alveolar bone Augmentation

Dr. Dong-Wook Chang

Initial assesment Visited for a mandibular first molar implantation due to long-term tooth loss

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

Objectives

› both sides teeth are tilted due to long-term tooth loss, and horizontal augmentation surgery is required due to absorption of the buccal margin.

Conclusions

› S1 bone graft was performed and horizontal alveolar augmentation was performed by membrane, and after 4 months, it was confirmed that the alveolar bone was well formed.
› Stable restoration of the final prosthesis after implantation due to the sufficient width of the implant through horizontal augmentation

Panoramic view at the first visit

#36 Incision

Implant placement & cortical perforation

S1 Bone Graft, membrane

S1 Bone Graft, membrane

Panoramic view of the first implant surgery

Post OP (4 months 2 weeks)

Gingival incision to check for bone regeneration

Healing abutment after 2nd surgery

Suture

Mandibular left first molar final prosthesis setting

Panoramic view of the final restoration setting

Treatment Steps

Panoramic view at the first visit

Preoperative Oral photo

Confirmation of bone resorption after incision

Mandibular right second molar implant placement

Mandibular right 1st molar, mandibular right 2nd molar absorbed downward to bone level

Moldable and sticky S1 bone after hydration

Bone Graft to match defect

membrane insertion

Suture

Post OP (1 months)

Post OP (1 months) Panorama

Post OP (5 months)

Signed healing abutment after 2nd OP

Signed healing abutment after 2nd OP

Final prosthesis Panorama

CLINICAL CASE 36

Horizontal ridge augmentation

Dr. Goh

Initial assesment The right lateral periphery of the maxillary cavity was absorbed so Horizontal bridge augmentation is performed.

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

Objectives

› The alveolar bone on the buccal side of the maxillary right first premolar was very thin, so implant placement was performed along with alveolar bone augmentation.

Conclusions

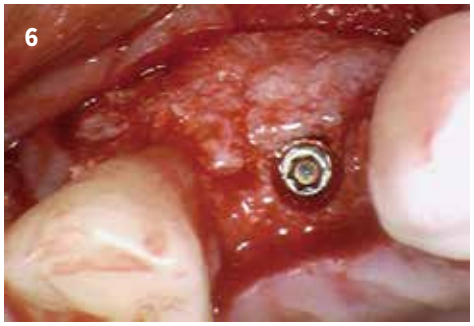
› Horizontal ridge augmentation was performed with S1 bone graft material on the absorbed buccal side, and it was confirmed that alveolar bone and volume were created 4 months later.
› Healing abutment after 2nd surgery

Marginal absorption horizontally on the buccal side of the maxillary right first premolar

Confirmation of marginal areas absorbed by incision and elevation

S1 Bonegraft preparation

Bonegraft on the buccal margin after implant placement on the maxillary right first premolar



Horizontal ridge augmentation

Suture

stich out (+10 day)

intraoral photo (+4 months)

healing cap proceed after 2nd stage surgery

Panorama after 2nd stage surgery

CLINICAL CASE 37

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 due to labial upper absorption of the maxillary left central incisor, and implant placement was performed along with surgery.

Conclusions

› Horizontal guided bone regeneration was performed on the absorbed labial side with S1 bone graft material, and it was confirmed that alveolar bone and volume were created 4 months later.

Oral photo of upper left lateral incisor

It was confirmed that labial absorption was confirmed by gingival incision

Confirmation of implant penetration in the labial thin margin

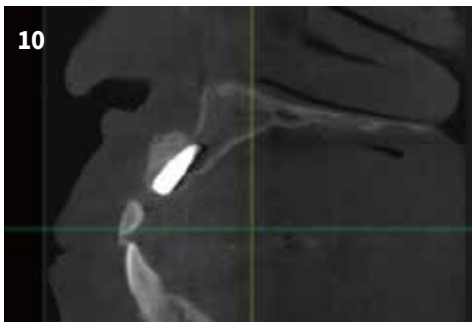
Labial GBR performed after implant placement on the maxillary left lateral incisor

Suture

Suture

Post OP (3 days)

Post OP (3 days)



CBCT (+3 months)

ntraoral photo (+4 months)

CLINICAL CASE 38

Horizontal Alveolar bone Augmentation

Dr. Jasbrinder Singh Teja

Initial assesment Visited for implant placement due to loss of maxillary left posterior teeth

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

Objectives

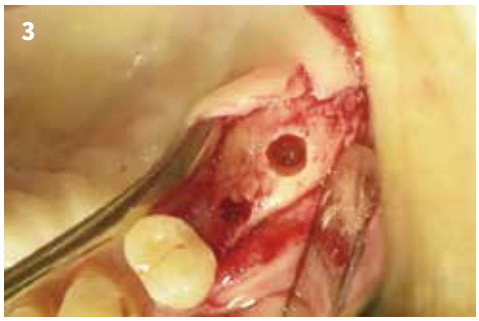
› Planning the Maxillary sinus elevation and implant placement due to low alveolar bone height in the left posterior region of the maxillary

Conclusions

› S1 bone graft was performed and horizontal alveolar augmentation was performed by membrane, and after 4 months, it was confirmed that the alveolar bone was well formed.
› Sufficient alveolar bone was formed for implant placement.

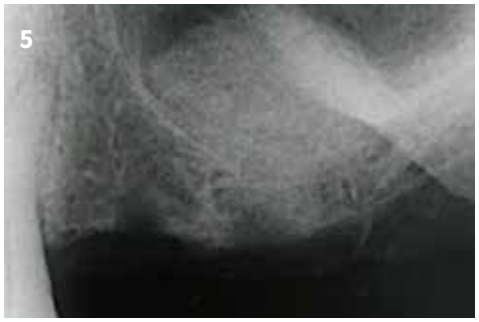
Gum incision

Drilling of upper left posterior teeth



Observation of movement of the sinus membrane of the maxillary left second molar during breathing

Elevation of the maxillary sinus and insertion of the Boss bone



Radiograph after maxillary sinus lift

Implant placement

Healing Abutment Fastening

Suture

Post OP

CLINICAL CASE 39

Narrow Rigde Augmentation in Posterior Area

Dr. Jaebum Lee

Initial assesment After extracting the existing tooth in narrow buccal bone, using S1 to reinforce the alveolar bone

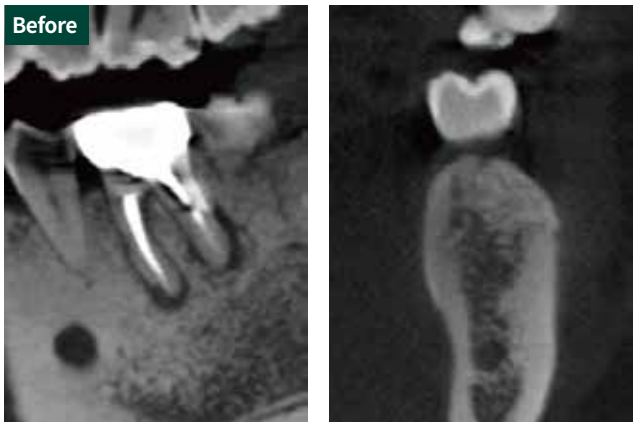
Products **S1 bone graft material** (Powder type, 0.2~1.0mm) | **Use of membrane** ■ Yes □ No

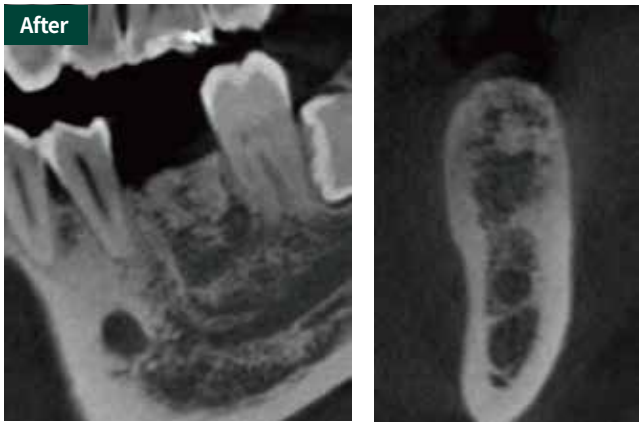
Objectives

› After tooth extraction, place S1 in the socket and proceed with open technique using PRF membrane.

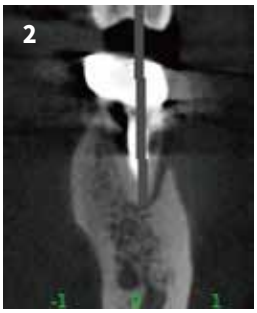
Conclusions

› Even though proceed with open technique without using a membrane, the soft tissue was well covered, and bone formation was very good after 6 months.





Treatment Steps



Preoperative x-ray

Confirmation of affected bone loss area after extraction

Application of S1 bone graft material

Bone covering with PRF membrane

Suture

Suture

Post OP

Post OP

Post OP

Post OP

X-ray after S1 bone graft material use

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S1

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