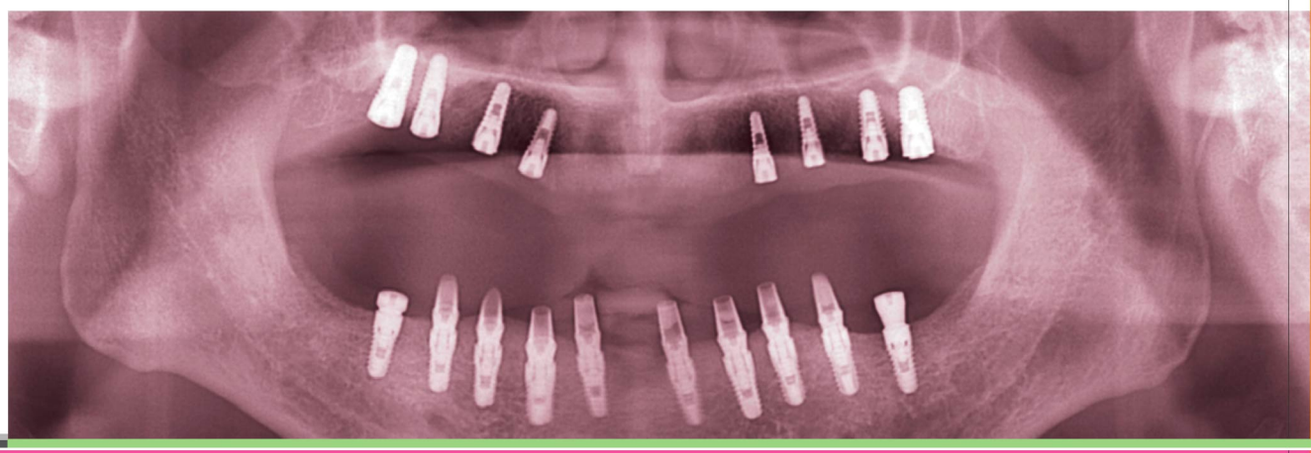

DIO Clinical Cases

BioTite-H / SM / ProTem / Secure

Dr. Seung Il Um, Dr. Dal Ho Lee, Dr. Dong Geun Jung, Dr. Woo Sik Kim, Dr. Dong Hyun Kim , Dr. Sang Jik Lee

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DIO
IMPLANT SYSTEM


DIO
IMPLANT SYSTEM
DIO Clinical Cases
BioTite-H / SM / ProTem

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Since its founding in 1983, DIO became KODAQ listed company, exporting over 60 countries,
under the various business divisions of dental implants, dental equipments, dental clinic openings,
toothpaste, and coronary artery stent. DIO promises to make a ceaseless effort to become
the world's highly technologized medical company.

Editorial

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Graduated from Busan National University
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Fellowship program completion at NYU in Implantology
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(School of Dental Material)
Private Practice at World Dental Clinic-Busan

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Graduated from Dankuk University (School of Dentistry)
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Implant Maxy-Course completion of New York Implant Surgery
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Former Full-time professor at Boston University in Implantology
Adjunct professor at Boston University in Implantology
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Member of American Academy of Periodontology

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Adjunct Professor at Busan National University (School of Dentistry)
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Busan Regional Director of Korean Association of Osseointegration (KAO)

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Contents

BioTite-H

SM

Contents

ProTem / Secure

DIO Implant System

Clinical Cases

BioTite-H

BioTite-H 1

Dr. Seung Il Um

Case | Insert BioTite-H Implant on maxillary incisors.

Patient | M / Early 30's

Treatment Duration | 3 months

Area | #7, 8, 9, 10

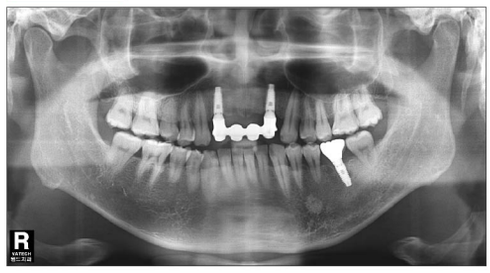
Product | DIO BioTite-H Implant(Brushite(CaP) coating Implant) (4.8x10mm)

Treatment Plan | Replace 4 unit bridge with 2 Implants delivery fixed provisional restoration utilizing ProTem Implants during the healing phase for better function and esthetics.

Overall Outcome | Improved outcome with Brushite(CaP) coating Implant in case of immediate placement after extraction.

Pre-Op

Post-Op

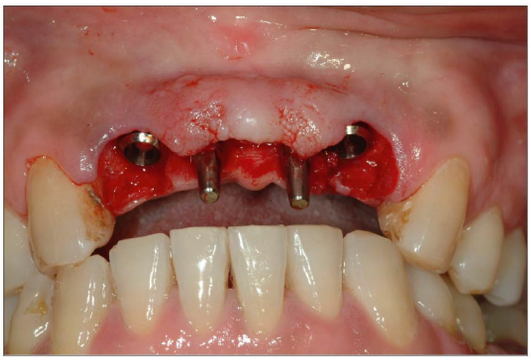


B.1-1

Plan to extract anterior bridge due to poor prognosis.

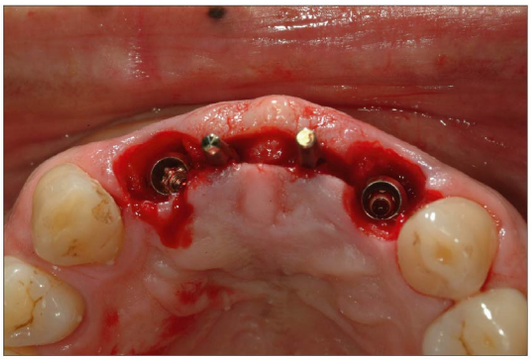
B.1-2

Clinical anterior view.



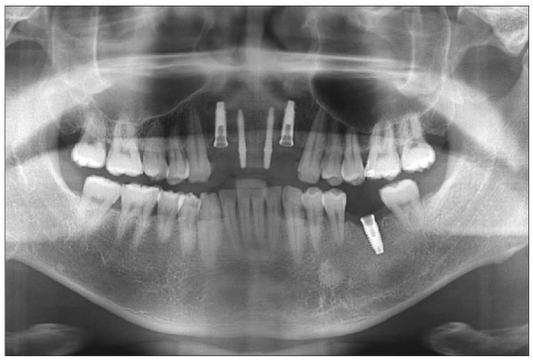
B.1-3

After extraction #7, 10 insert BioTite-H Implants on #7, 10 and place ProTem Implant on #8, 9.



B.1-4

Occlusal view.



B.1-5

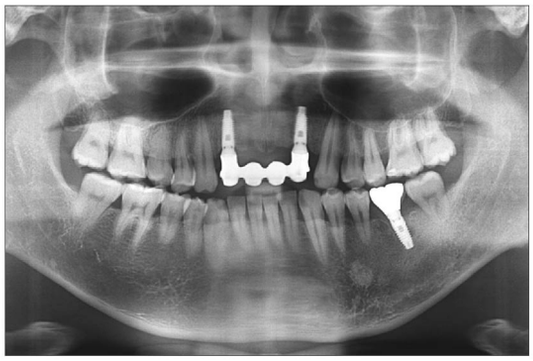
Post-op panoramic radiograph.

B.1-6

Fixed provisional restoration.

B.1-7

Final restoration after 2 months healing.



B.1-8

Panoramic radiograph with final restoration.

BioTite-H 2

Dr. Seung Il Um

Case | Immediate Implant placement after extraction of mandibular posterior teeth with BioTite-H Implant.

Patient | F / Early 70's

Treatment Duration | In Process

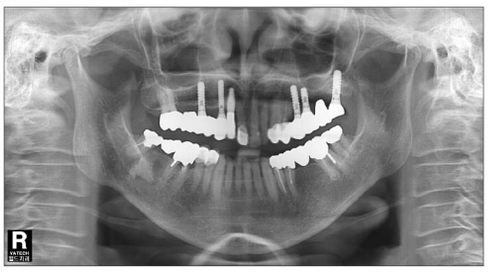
Area | #30, 31

Product | DIO BioTite-H Implant(Brushite(CaP) coating Implant) (5.3x10mm)

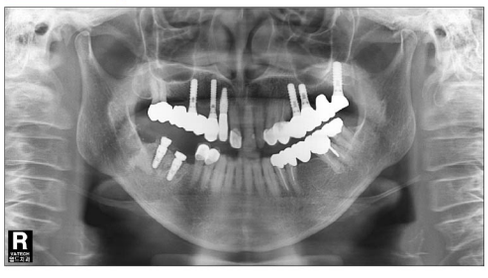
Treatment Plan | Immediate placement after extraction.
Choose Brushite(CaP) coating Implant for immediate placement.

Overall Outcome | Improved outcome with Brushite(CaP) coating Implant in case of immediate implant placement after extraction.

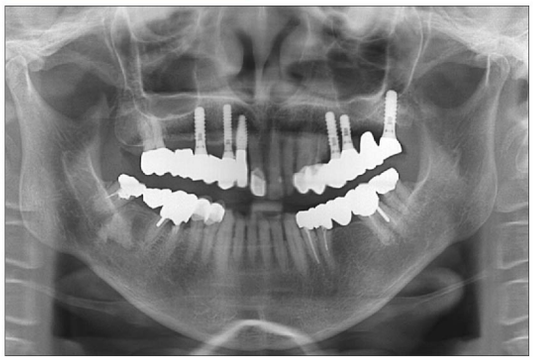
Pre-Op



Post-Op



Mandible treatment

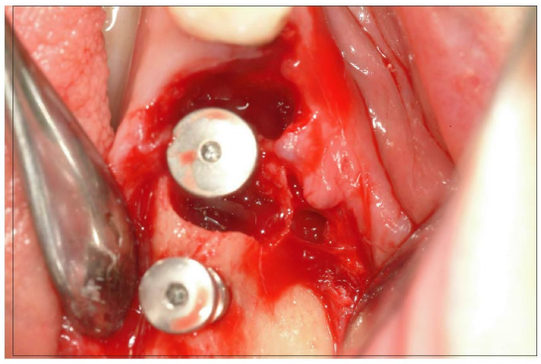


B.2-1

Pre-op panoramic radiograph.

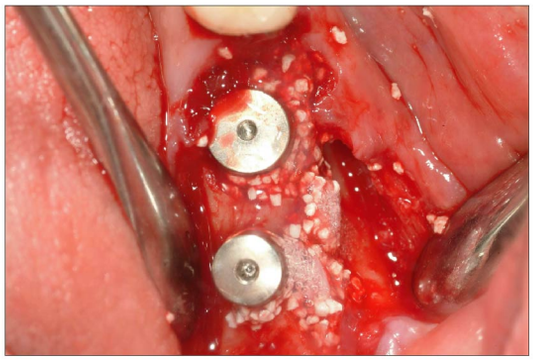
B.2-2

Mandibular posterior fixed partial denture removed.
Plan for immediate implant placement after extration.



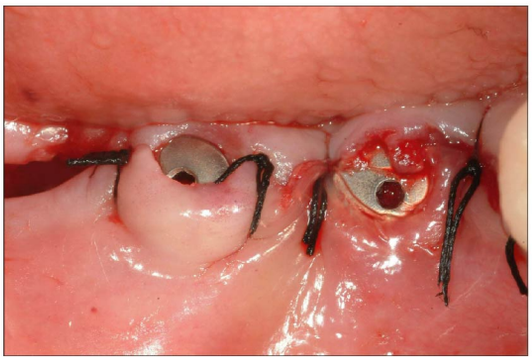
B.2-3

Insert BioTite-H Implant(5.3x10mm)
immediately after extraction of #30.

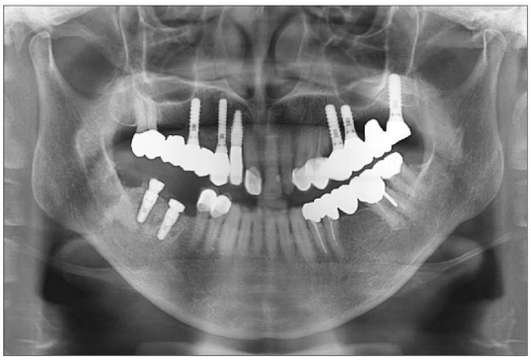


B.2-4

Place bone graft in the defect around implant.



B.2-5
Suture.



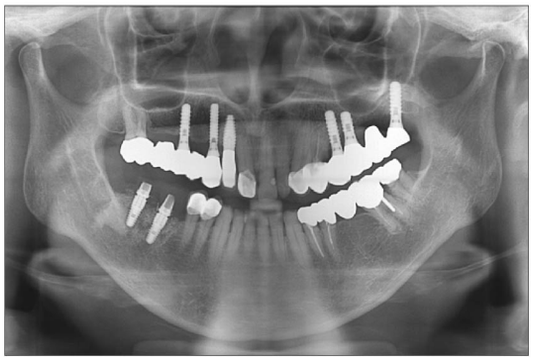
B.2-6
Post-op panoramic radiograph.

B.2-7
Abutment connection after second surgery,
6 weeks after insertion.

B.2-8
Provisional restoration.

B.2-9

Before final delivery.



B.2-10

Before final delivery panoramic radiograph.

B.2-11

After cementation definitive prosthesis.

Clinical Cases BioTite-H 3

Dr. Seung Il Um

Case | Insert BioTite-H Implant using osteotome technique on maxillary posterior teeth.

Patient | M / Mid 40's

Treatment Duration | In Process

Area | #2, 3

Product | DIO BioTite-H Implant(Brushite(CaP) coating Implant) (4.5×10mm)

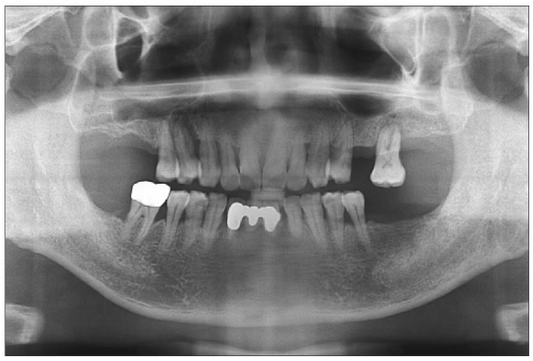
Treatment Plan | Because of the poor bone quality and quantity, Brushite(CaP) coating Implant is recommended (faster osseointegration).

Overall Outcome | Brushite(CaP) coating Implant has been used effectively in maxillary posterior area. Better success rate comparing conventional RBM surface treated Implant. Effective in newly formed bone.

Pre-Op

Post-Op

Maxilla Treatment

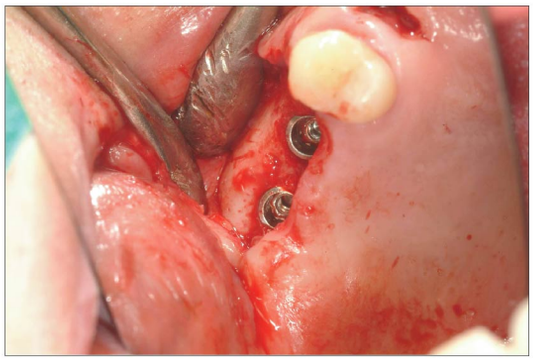


B.3-1

Pre-op panoramic radiograph.

B.3-2

Pre-op occlusal view.



B.3-3

Insert BioTite-H Implant(4.5x10mm) after flap.

B.3-4

Post-op panoramic radiograph.

BioTite-H 4

Dr. Seung Il Um

Case | BioTite-H Implants on maxillary partial edentulous area with bone graft.

Patient | F / Late 30's

Treatment Duration | In Process

Area | Edentulous maxilla

Product | DIO BioTite-H Implant(Brushite(CaP) coating Implant) (4.5×12mm, 4.5×14mm)

Patient's chief complaint | Long term removable partial denture wearer, wants to have fixed restoration.

Treatment Plan | Implant surgery combined with ridge splitting is recommended due to atrophic ridge(thin).

Pre-Op

Post-Op

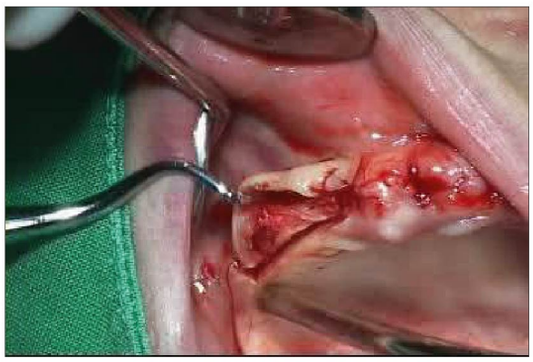
Maxilla Treatment

B.4-1

Pre-op panoramic radiograph.

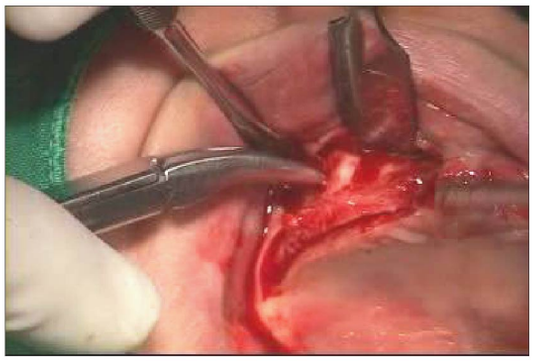
B.4-2

Crestal incision.



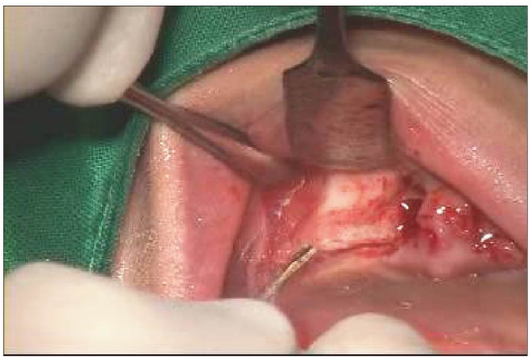
B.4-3

Raise flap to expose underlining alveolar bone.



B.4-4

Remove soft tissue attached to the bone using bone rongeur.

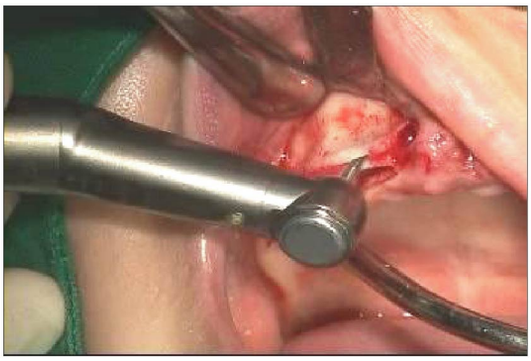


B.4-5

Ridge splitting using Piezo.

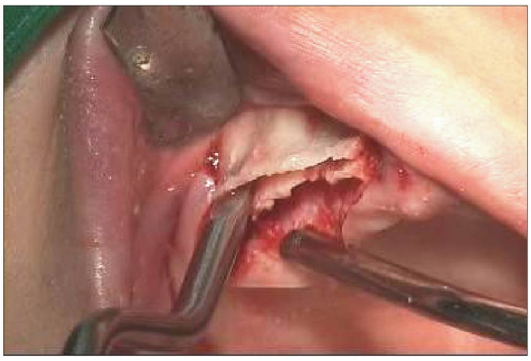
B.4-6

Expand ridge using ridge splitting instrument.



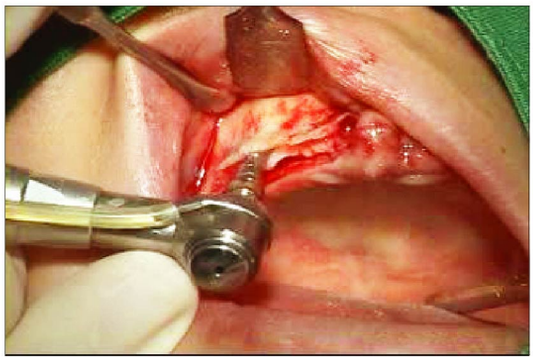
B.4-7

Remove additional bone in apical portion with surgical fissure bur.



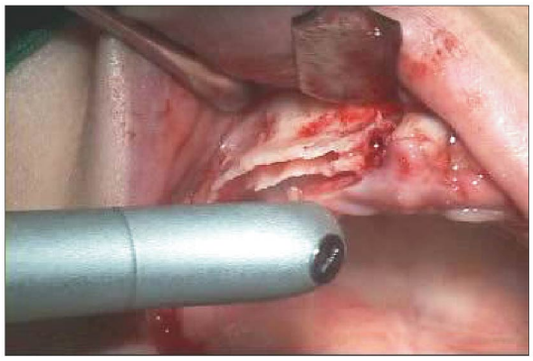
B.4-8

Expand ridge using ridge splitting instrument.



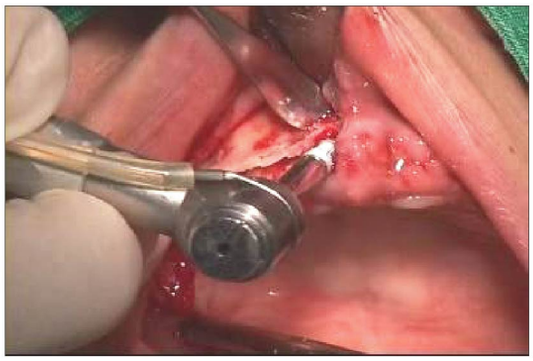
B.4-9

Drilling for implant fixture.



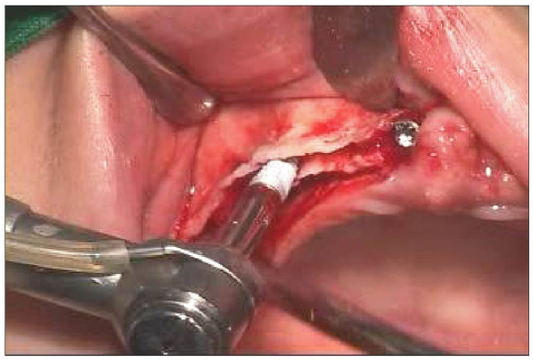
B.4-10

Sterilize the site with laser.



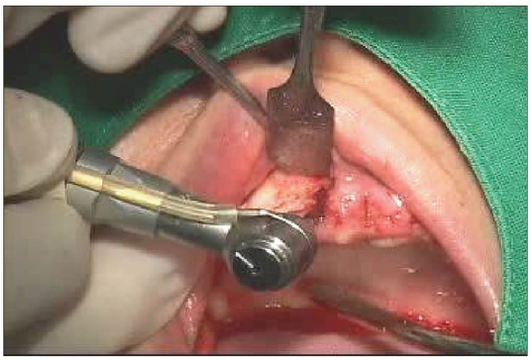
B.4-11

Insert BioTite-H Implant.



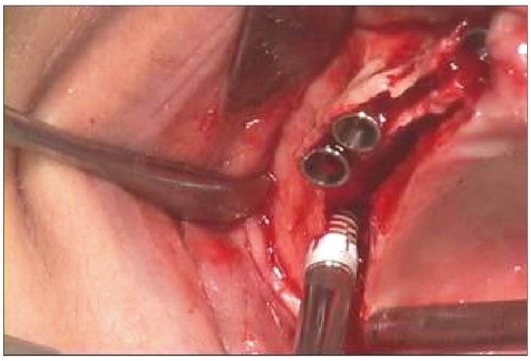
B.4-12

Insert second BioTite-H Implant.



B.4-13

Insert 3rd BioTite-H Implant.



B.4-14

Insert 4th BioTite-H Implant.

B.4-15

Completion of Implant placement.

B.4-16

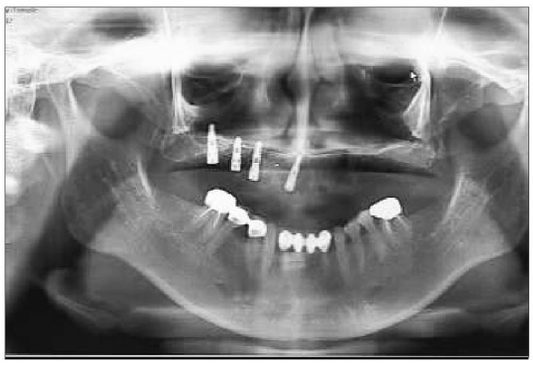
Gap between bone and Implants filled with bone graft.

B.4-17

Horizontal bone graft on buccal side to increase the width.

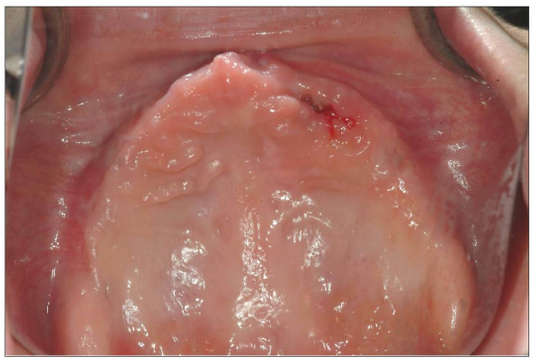
B.4-18

Suture.



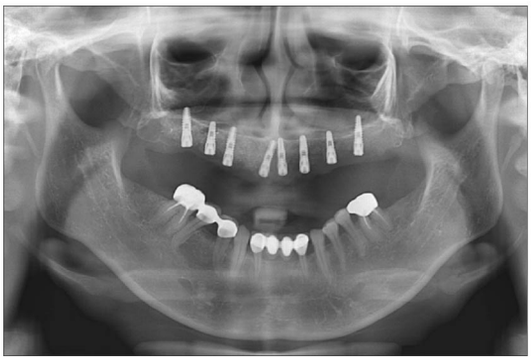
B.4-19

Panoramic radiograph after the surgery of maxillary right side.



B.4-20

Intra-oral picture after the surgery of maxillay left side, healing phase.



B.4-21

Panoramic radiograph after the surgery
of maxillary left side with BioTite-H Implant.

BioTite-H 5

Dr. Woo Sik Kim

Case | Replace failed implant sites with Brushite(CaP) coating Implants.

Patient | M / 50's

Treatment Duration | In Process

Area | #12, 13

Product | DIO BioTite-H Implant(Brushite(CaP) coating Implant)
(4.5x12mm, 4.5x10mm)

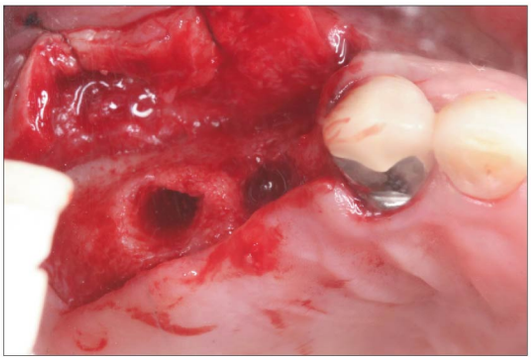
Treatment Plan | Fabrication of Implant supported partial denture.

Overall Outcome | Used BioTite-H Implants for improved osseointegration
in the site where previous implants failed. Observed better outcome.
Further controlled study will be followed to support better success rate.

Maxilla Treatment

B.5-1

Previous failed Implant was removed; observe soft tissue healing for implant placement.



B.5-2

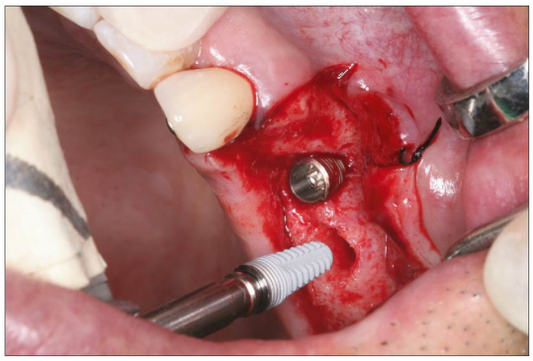
Raised flap.

B.5-3

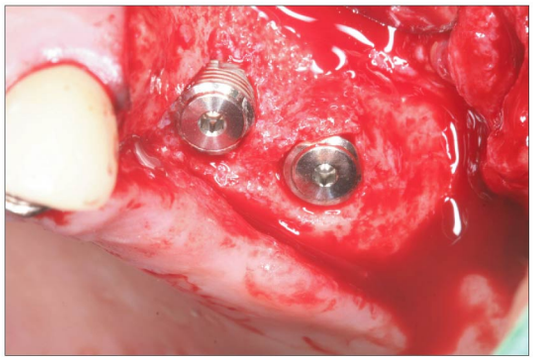
BioTite-H Implant(4.5X12mm).

B.5-4

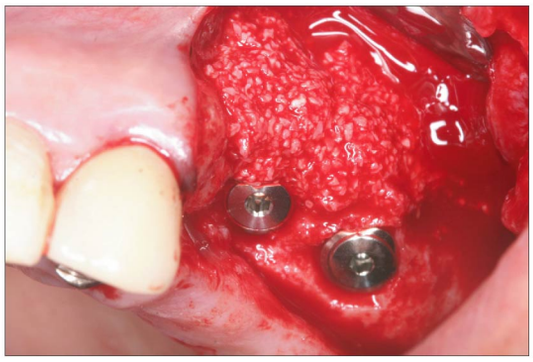
BioTite-H Implant(4.5X10mm).



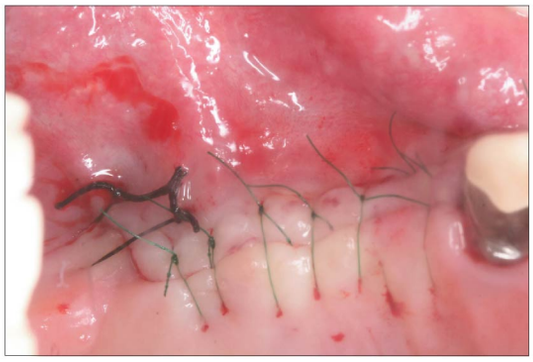
B.5-5
Insert BioTite-H Implant.



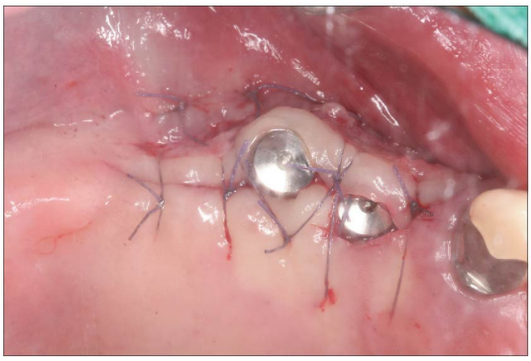
B.5-6
Observe bony defect around Implant fixture.



B.5-7
Bone graft using mixture of autograft and allograft.



B.5-8
Suture.



B.5-9

Second surgery.

B.5-10

Final impression with pick up impression coping.

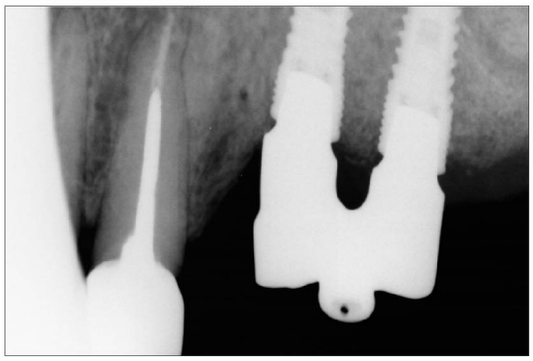
B.5-11

Implant supra structure with locator attached.

B.5-12

Implant supported removable partial denture in situation.

Maxilla Treatment



B.5-13

Final radiograph of supra structure.

BioTite-H 6

Dr. Dong Hyun Kim

Case	Brushite(CaP) coating Implants on maxilla for the better mastication.
Patient	F / 27
Treatment Duration	4 month
Area	#3
Product	DIO BioTite-H Implant(Brushite(CaP) coating Implant) (4.5x12mm)
Treatment Plan	1. Remove #3 root tip. 2. Implant placement after 6-8 week healing. 3. Implant placement with sinus elevation using window technique.
Overall Outcome	Implant was placed with sinus elevation after 6-12 week healing of extraction socket and soft tissue.

Pre-Op

Post-Op

Maxilla Treatment

B.6-1

Pre-op panoramic radiograph.

B.6-2

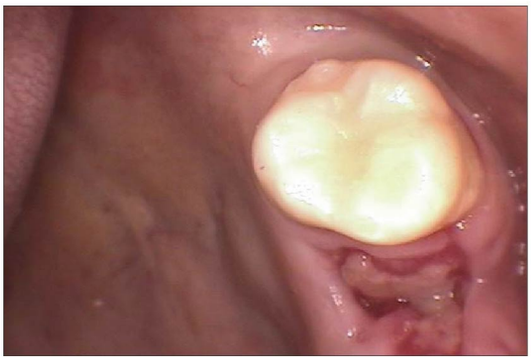
Periapical radiograph.

B.6-3

Intraoral view.

B.6-4

After extraction.

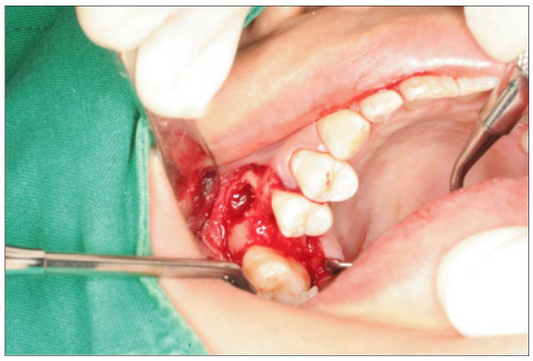


B.6-5
Intraoral view after extraction.

B.6-6
2 months after extraction panoramic radiograph.

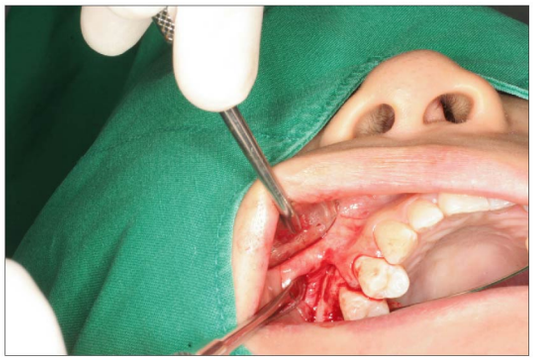
B.6-7
2 months after extraction periapical radiograph.

B.6-8
Intraoral view on the day of Implant surgery.



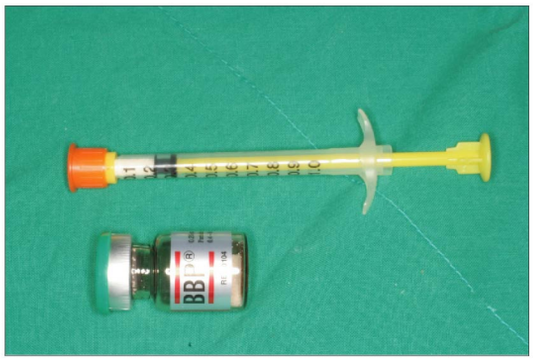
B.6-9

Raised flap.



B.6-10

Open the window and sinus elevation.



B.6-11

BBP+Sure-oss.

B.6-12

Mixing.

B.6-13

Insert the half of the bone graft from the inside of sinus.

B.6-14

Insert the other half of the bone graft to the outside of sinus.

B.6-15

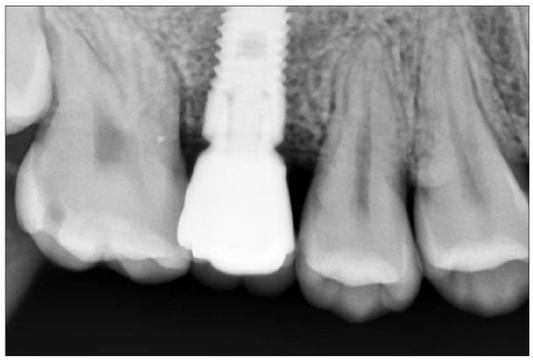
Panoramic radiograph after surgery.

B.6-16

Periapical radiograph 2 weeks after surgery.

B.6-17
Panoramic radiograph 4 weeks after surgery.

B.6-18
Intraoral view 4 weeks after surgery.



B.6-19
Final radiograph.

BioTite-H 7

Dr. Seung Il Um

Patient	M / Early 30's
Treatment Duration	5 months
Area	#15
Product	DIO BioTite-H Implant(Brushite(CaP) coating Implant) (4.5x10mm)
Treatment method	Place Brushite(CaP) coating Implant considering bone quality 3 month after extraction.

B.7-1 Pre-op panoramic radiograph.

B.7-2 Panoramic radiograph 3 months after extraction.

B.7-3 Panoramic radiograph after implant placement.

B.7-4 Delivery of cement-type abutment.

B.7-5 Definitive prosthesis.

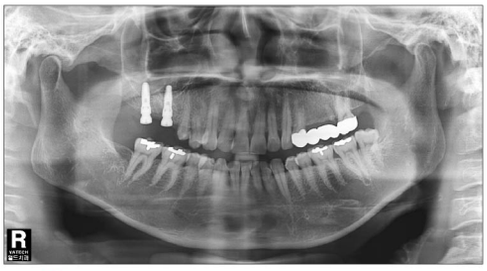
BioTite-H 8

Dr. Seung Il Um

Patient	F / Early 50's
Treatment Duration	4 months
Area	#2, 3
Product	DIO BioTite-H Implants(Brushite(CaP) coating Implant) (4.5x14mm)
Treatment Method	Prosthesis in maxillary right side in poor prognosis. Implant therapy in 1 month healing after extraction.

B.8-1 Pre-op panoramic radiograph

B.8-2 Panoramic radiograph, 1 month healing after extraction.



B.8-3 Insert DIO BioTite-H Implants (4.5x14mm), healing abutment exposed, one stage surgery.

B.8-4 Abutment connection.

B.8-5 Definitive prosthesis.

BioTite-H 9

Dr. Seung Il Um

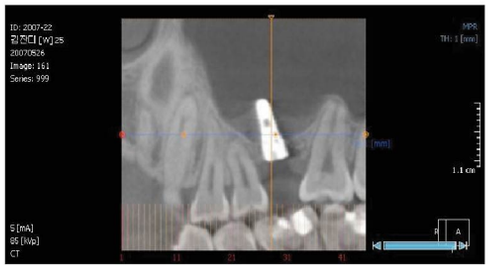
Patient	F / Mid 20's
Treatment Duration	In Process
Area	#4, 14
Product	DIO BioTite-H Implant(Brushite(CaP) coating Implant) (3.8x10mm) DIO ProTem Implant (2.5x12mm)
Treatment Method	Mini implant planned on #4 because of narrow mesio-distal space. BioTite-H Implant combined with Osteotome technique on #14

B.9-1 Pre-op panoramic radiograph.

B.9-2 Place ProTem Implant on #4.

B.9-3 Insert BioTite-H Implant using Osteotome on #14.

B.9-4 Sinus elevation using osteotome technique.



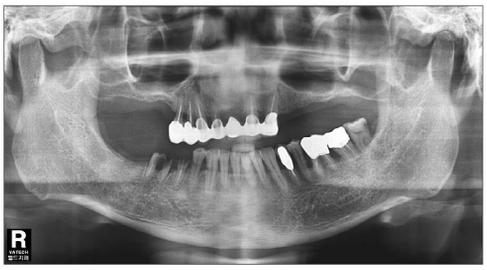
B.9-5 Sinus elevation using osteotome technique.

B.9-6 Post-op panoramic radiograph.

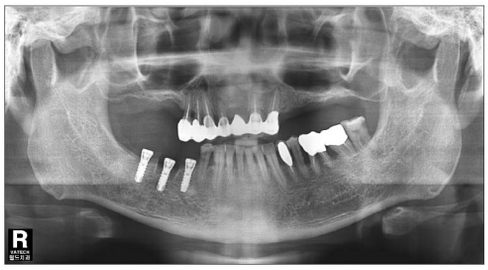
BioTite-H 10

Dr. Seung Il Um

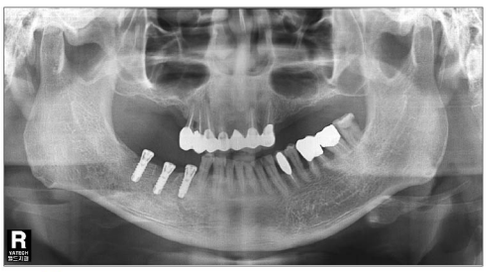
Patient	M / Late 40's
Treatment Duration	In Process
Area	#2, 3, 13, 14, 15
Product	DIO BioTite-H Implant(Brushite(CaP) coating Implant) (4.5x12mm)
Treaetment Method	Plan BioTite-H Implants along with bilateral sinus lift.



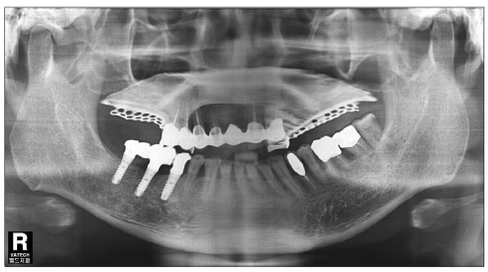
B.10-1 Pre-op panoramic radiograph.



B.10-2 Implants on mandibular posterior area.

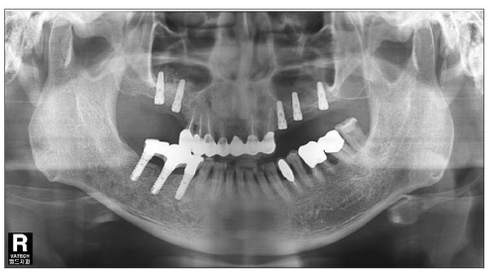


B.10-3 Healing after insertion.



B.10-4 Bilateral sinus lift technique will be necessary.

B.10-5 Insert BioTite-H Implants on maxillary right side.



B.10-6 Post-op panoramic radiograph.

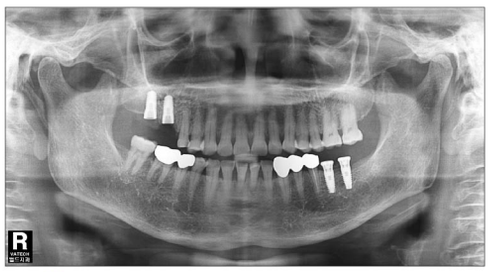
BioTite-H 11

Dr. Seung Il Um

Patient	F / 70's
Treatment Duration	9 months
Area	#2, 3, 18, 19
Product	DIO BioTite-H Implant(Brushite(CaP) coating Implant) (4.8x10mm) DIO SM Implant (5.3x12mm)
Treatment Method	Implants therapy for posterior teeth.

B.11-1 Pre-op panoramic radiograph.

B.11-2 Insert BioTite-H Implants on mandibular posterior area.



B.11-3 Insert SM Implants on maxillary posterior area.

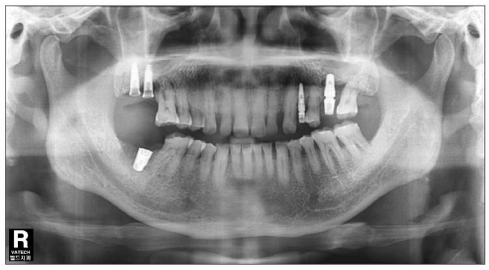
B.11-4 Panoramic radiograph after delivery of prosthesis.

BioTite-H 12

Dr. Seung Il Um

Patient	M / Early 50's
Treatment Duration	3 months
Area	#2, 12, 14
Product	DIO BioTite-H Implant(Brushite(CaP) coating Implant) (4.0x12mm) DIO SM Implant (3.8x12mm, 5.3x10mm)
Treatment Method	Brushite(CaP) coating Implants on the area with poor bone quality.

B.12-1 Pre-op panoramic radiograph.



B.12-2 Insert BioTite-H Implants on maxillary right side.

B.12-3 Healing period after insertion.

B.12-4 Definitive prosthesis.

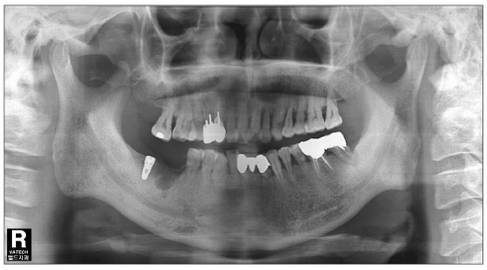
BioTite-H 13

Dr. Seung Il Um

Patient	M / Early 50's
Treatment Duration	6 months
Area	#30, 31
Product	DIO BioTite-H Implant(Brushite(CaP) coating Implant) (4.8x10mm) DIO SM Implant (4.5x10mm)
Treatment Method	Allograft before Implant placement on #30 because of bony defect.

B.13-1 Pre-op panoramic radiograph.

B.13-2 Insert SM implant on #31.



B.13-3 Bone graft (allograft) before Implant placement on #30 because of bony defect.

B.13-4 Fabrication of prosthesis in process.

B.13-5 Panoramic radiograph after definitive prosthesis.

BioTite-H 14

Dr. Seung Il Um

Patient	F / Late40's
Treatment Duration	4 months
Area	#13, 31
Product	DIO BioTite-H Implant(Brushite(CaP) coating Implant) (4.5x14mm) DIO SM Implant (5.3x10mm)
Treatment Method	Choose Brushite(CaP) coating Implant and RBM surface treated implant selectively based on bone quality.

B.14-1 Pre-op panoramic radiograph.

B.14-2 Insert implants.

B.14-3 Panoramic radiograph during healing period.

DIO Implant System

Clinical Cases

SM

SM 1

Dr. Seung Il Um

Case | Immediate implant placement after extraction using laser.

Patient | M / Mid 30's

Treatment Duration | 3 months

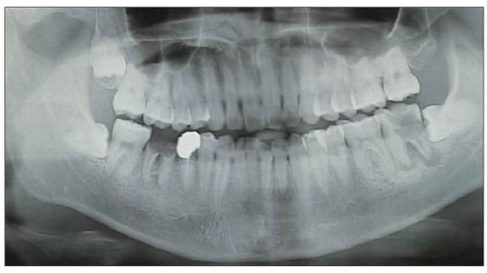
Area | #30

Product | DIO SM Implant
(5.3x12mm)

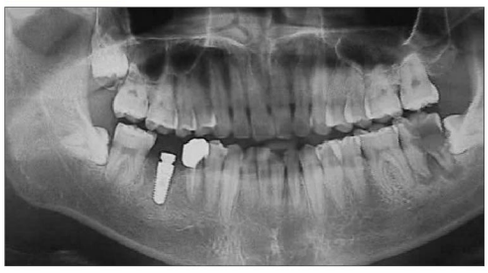
Treatment Plan | After extraction, perform drilling using Erbium laser and immediate Implant placement.

Overall Outcome | Advantages using laser instead of conventional drill to remove bone are less bleeding, reduced post-op pain, and effect of bone regeneration. Disadvantage is a longer time of bone formation compared to conventional drill.

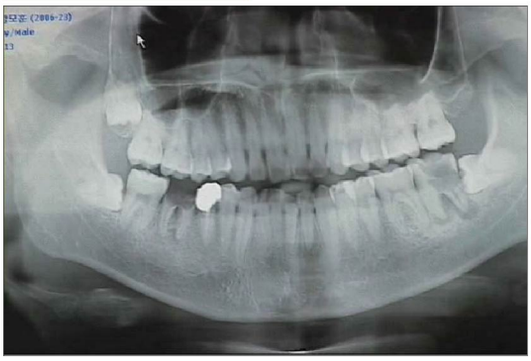
Pre-Op



Post-Op



Mandible treatment

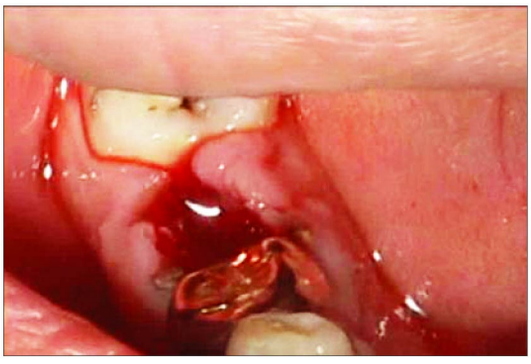


S.1-1

Plan to remove #30 residual root and place Implant.

S.1-2

Sterilize the surgical site using laser before extraction.



S.1-3

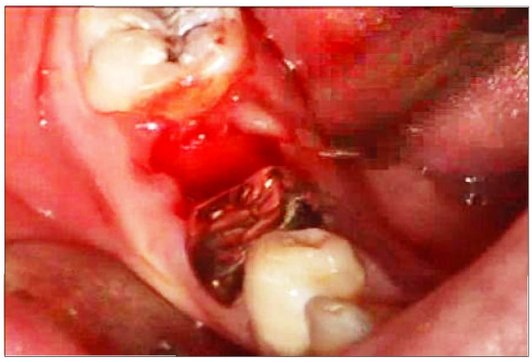
Extract #30 tooth.

S.1-4

Sterilize the extraction socket after extraction using lasez.

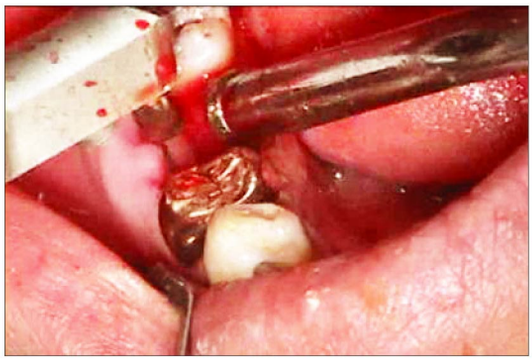
S.1-5

Sterilize the extraction socket after extraction using lasez.



S.1-6

Sterilize the extraction socket after extraction using lasez.

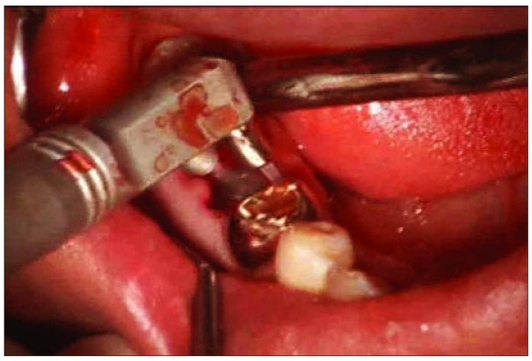


S.1-7

Perform osteotomy using laser.

S.1-8

Insert SM Implant (5.3 x 12mm) and connect healing abutment.



S.1-9

Sterilize the soft tissue around Implant.

S.1-10

Panoramic radiograph after insertion.

SM 2

Dr. Seung Il Um

Case | Immediate implant placement after extraction of maxillary posterior tooth.

Patient | M / late 30' s

Treatment Duration | 4 months

Area | #14

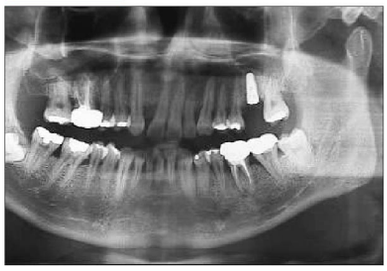
Product | DIO SM Implant (5.3x12mm)

Treatment Plan | Immediate Implant placement after extraction of non-restorable tooth.
Select submerged type Implant to provide initial stability in the extraction socket

Overall Outcome | It is necessary to fill the large space between Implant fixture and extraction socket with bone graft material.
If the gap is less than 2mm, the healing process is not usually compromised.

Pre-Op

Post-Op



Maxilla Treatment

S.2-1

Pre-op Panoramic radiograph.

S.2-2

Remove residual root using round bur with high speed handpiece.

S.2-3

Perform initial osteotomy using Lance drill after extraction.

S.2-4

Verify the location of osteotomy hole.

S.2-5

Perform 2mm pilot drilling.

S.2-6

Verify the location of osteotomy hole.

S.2-7

Perform 3.5mm drilling.

S.2-8

Verify the location of osteotomy hole.

S.2-9

Perform 4.0mm drilling.

S.2-10

Verify the location of osteotomy hole.

S.2-11

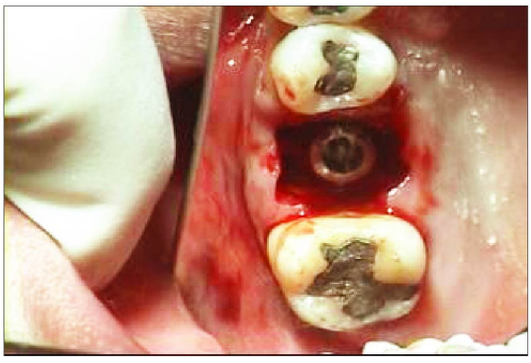
Perform 4.8mm drilling.

S.2-12

Insert 5.3x12mm Implant.

S.2-13

Completion of implant placement.



S.2-14

Completion of Implant placement.

S.2-15

Post-op panoramic radiograph.

SM 3

Dr. Seung Il Um

Case | SM Implant placement after extraction using laser.

Patient | M / 43yrs

Treatment Duration | 3 months

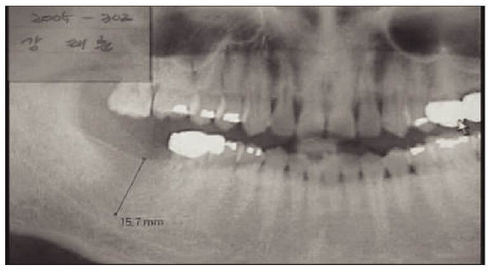
Area | #31

Product | DIO SM Implant
(5.3x14mm)

Treatment Plan | Patient complains missing 2nd molar and reduced mastication.
There is enough bone height to inferior alveolar nerve.

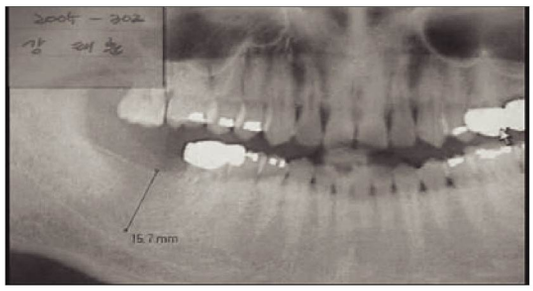
Overall Outcome | Attempt Erbium-yag laser instead of
conventional drill to remove bone.

Pre-Op



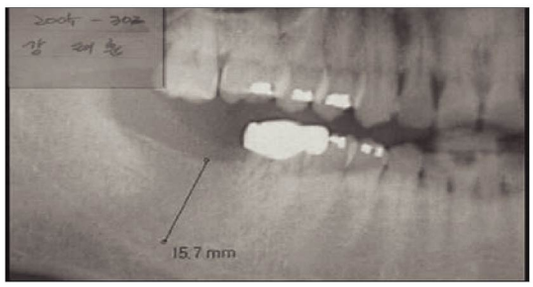
Post-Op

Maxilla Treatment



S.3-1

Enough space to inferior alveolar nerve.



S.3-2

Observe slight extrusion of opposing dentition.

S.3-3

Incision with Erbium-yag laser.

S.3-4

Expose alveolar bone using elevator.

S.3-5

Expose alveolar bone using elevator.

S.3-6

Remove bone using laser.

S.3-7

Exposed alveolar bone.

S.3-8

Continue to remove the bone.

S.3-9

Final drilling using tapered drill.

S.3-10

Insertion of Implant.

S.3-11

Completion of implant placement.

S.3-12

Suture.

S.3-13

Panoramic radiograph after insertion of Implant.

SM 4

Dr. Dal Ho Lee

Case | GBR on maxillary central incisor

Patient | F/40' s

Treatment Duration | 4 months

Area | #8

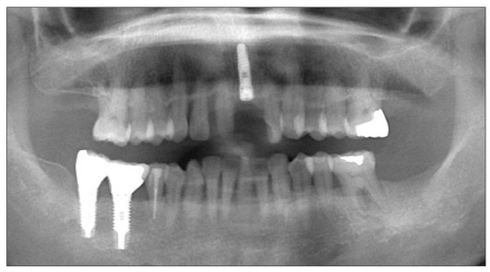
Product | DIO SM Implant
(4.5 x 12mm)

Treatment Plan | Patient has been treated on mandibular posterior teeth 3 years ago. Her central incisors have PFM restorations which are splinted, and the right central incisor presents with a bone loss close to apex. Immediate provisional restorations will replace current prosthesis, and then implant placement with GBR is planned after extraction of right central incisor.

Overall Outcome | Surgical precaution; adequate initial stability (〉30N/cm), 3mm apically placed position than the lowest gingival line of adjacent teeth (not CEJ line), and slightly palatally placed position to assure better esthetic result due to enough bone and soft tissue of labial side.

Pre-Op

Post-Op



Maxilla Treatment

S.4-1

Pre-op picture.

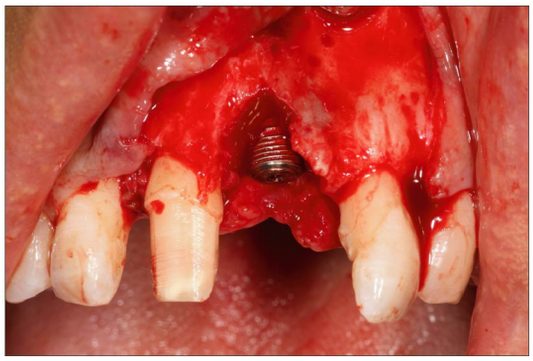
S.4-2

Central incisors have PFM restorations which are splinted, and the right central incisor presents with a bone loss close to apex.

S.4-3

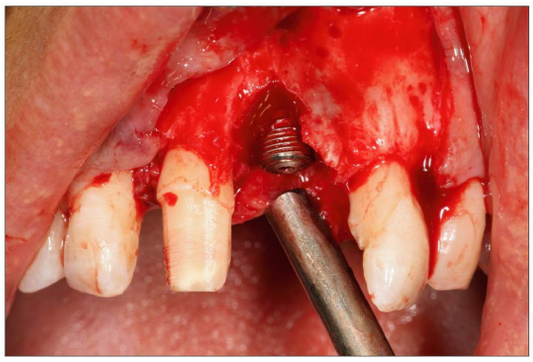
Provisional shell was prepared to reline on #8 with pontic on #9 before the extraction #9. There was severe pus when #9 was extracted.

Performed Curettage and Irrigation with Chlorohexidine 0.2% on the extraction socket due to acute inflammation with pus. After 2 minutes later, did curettage and irrigation with saline because of the cytotoxicity on osteoblast of chlorohexidine. Used long SM (4.5x12mm) Implant to achieve the stability at the apical 4-5mm.
(SM Implant has strong screw and tapered design at the apex)



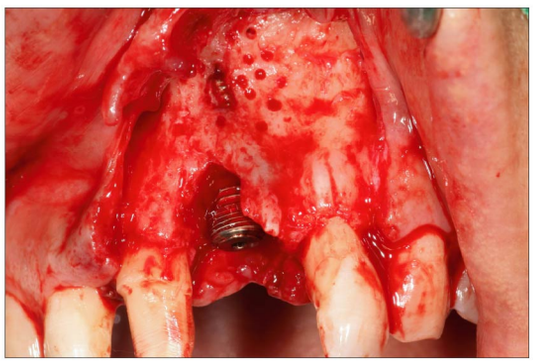
S.4-4

Implant platform located 3mm below the lowest gingival point of adjacent teeth is recommended.
In case of implant placed too deep, the higher chance to have gingival recession. In case of implant placed too shallow, it is difficult to control emergency profile and it could lead to implant platform exposed in extreme case.



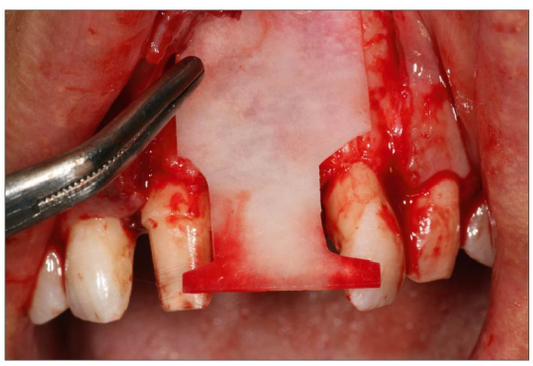
S.4-5

Observe the dehiscence in implant due to labial concavity of apex, and thread exposure of implant because of bone resorption.



S.4-6

Performing GBR, decortification is recommended using #2 carbide round bur .



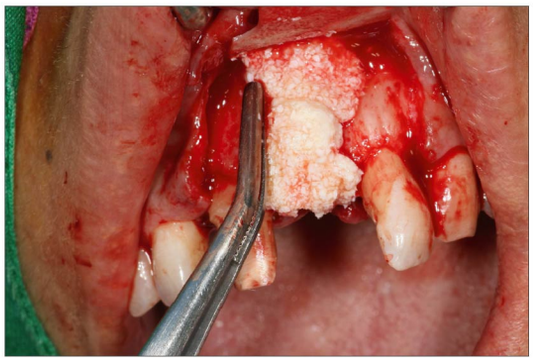
S.4-7

Membrane would be cut ineraorally according to the shape intraorally,
and then delivered after soaking in saline.

Utilize Grafting bone from either bone scraper or bone crasher of autogenous bone.

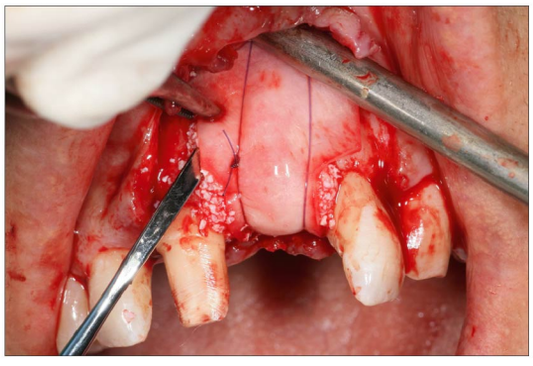
S.4-8

Deliver crashed autogenous bone directly to Implant in 1.5–2.0mm layer.



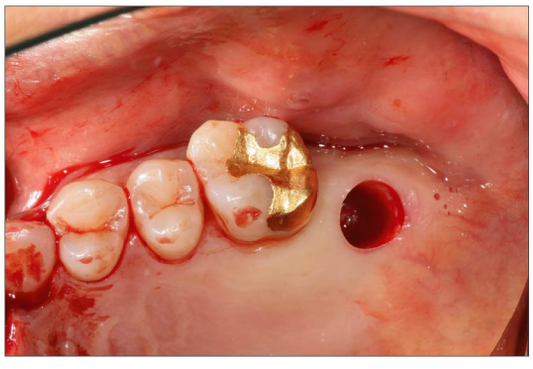
S.4-9

Deliver outer layer with mixture of Xenograft (Bio-oss), autograft, and PRP.



S.4-10

Suture the resorbable membrane with 5-0 absorbable suture.

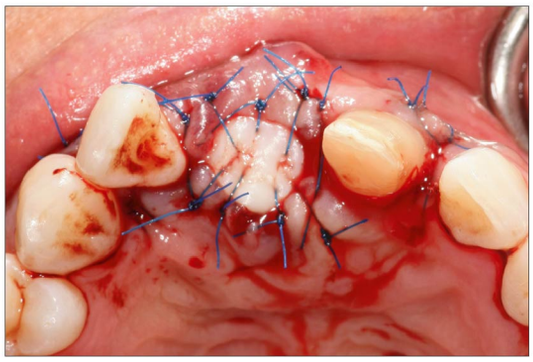


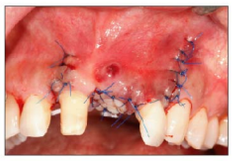
S.4-11

A hole will remain after suturing flap in extraction site. Coronal repositioned flap is commonly used, but is followed by edema, pain and loss of attached gingiva.
To prevent these, A graft from a different site could be used.

S.4-12

Graft tissue from attached gingiva in palate using tissue punch



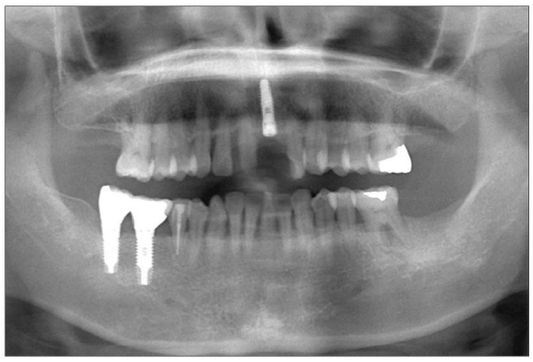


S.4-13

Suture with 5–0 monofilament.

S.4-14

Suture the donor site.



S.4-15

Panoramic radiograph after insertion.

SM 5

Dr. Dal Ho Lee

Case | Hydrostatic Pressure Sinus graft.

Patient | M / 38yrs

Treatment Duration | 4 months

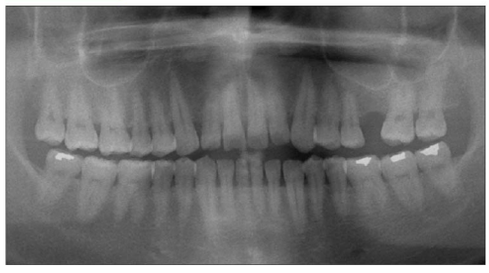
Area | #13

Product | DIO SM Implant
(4.5x12mm)

Treatment Plan | Chief complaint– missing #14
There is 7mm distance from the ridge crest to sinus which is not adequate for the load in 1st molar.
Plan to install DIO SM Submerged 4.5x12mm Implant

Overall Outcome | DIO SM Implant has microthread to allow high insertion torque(usually 20N/cm) in thin remaining bone on maxillary sinus area and round– shaped apex for better bone regeneration and less irritation on membrane

Pre–Op

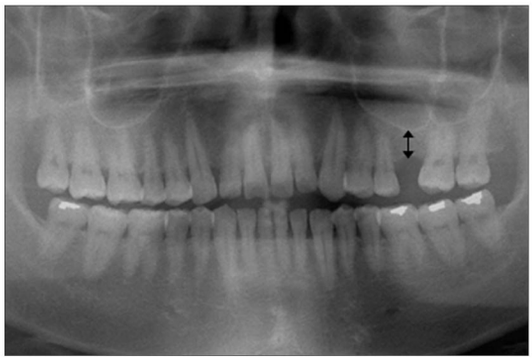


Post–Op

Mandible treatment

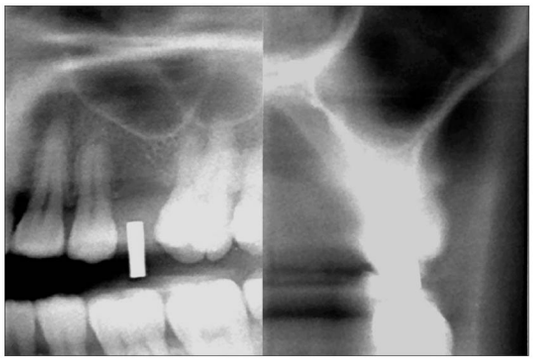
S.5-1

Pre-op view.



S.5-2

There is 7mm distance from the ridge crest to sinus which is not adequate for the load in 1st molar .

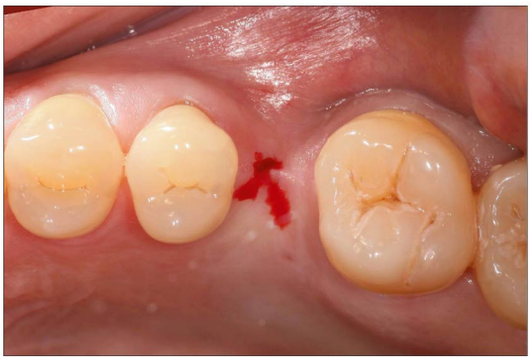


S.5-3

Plan to install DIO SM Submerged 4.5x12mm Implant with flapless surgery after sinus elevation.

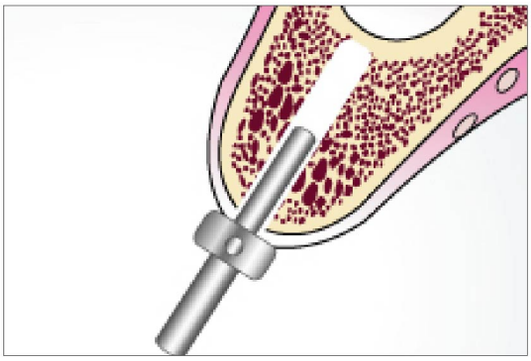
S.5-4

Drilling down to 6mm(including soft tissue 3mm) using 2.0mm guide drill.



S.5-5

After drilling.



S.5-6

Check the M-D distance and Implant direction with Parallel pin.

S.5-7

Punch out the tissue with tissue punch engaging the center point of guide mark.

S.5-8

Connect tissue punch using hand piece, and then remove the punched tissue with surgical curette.

S.5-9

Connect tissue punch using hand piece, and then remove the punched tissue with surgical curette.

S.5-10

Drilling down to 6mm using 2.0mm initial drill (1mm left intact out of 7mm bone height).

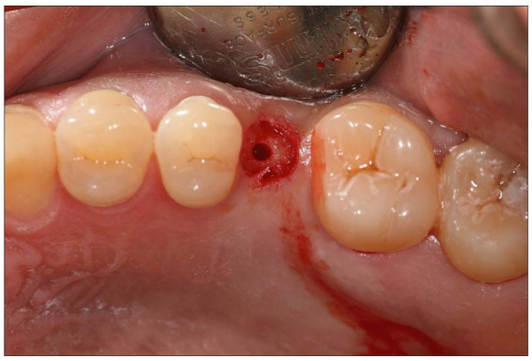
Surgical Piezoelectricity
(Ultrasonic bone cutting machine)

S.5-11

Remove remaining 1mm bone using Piezo with metal tip for osteotome.

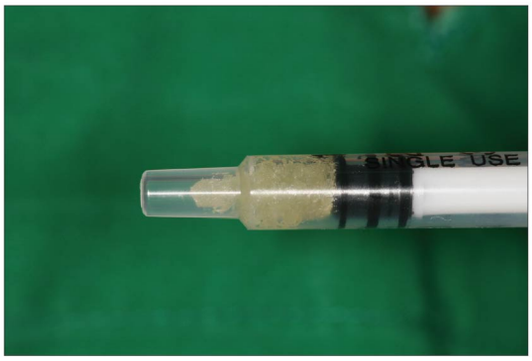
S.5-12

Ater that, expand the drill hole.



S.5-13

The osteotome Piezo metal tip would not perforate the sinus membrane unless heavy force is used. Once the hole gets into the sinus, ask patient to blow an air through nose when it is blocked. Observe the blood bubble when the sinus membrane is perforated, otherwise see just bleeding.



S.5-14

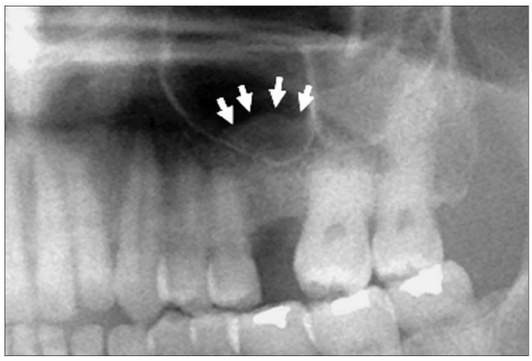
Inject DFDB gel type into the socket.
Some resistance will be observed at the beginning.

S.5-15

Use DFDB Gel type in first 2cc because of flowability and softness not to harm membrane.

S.5-16

Deliver Bio-Oss particle with condenser.



S.5-17

Better comfort compared to using mallet.

S.5-18

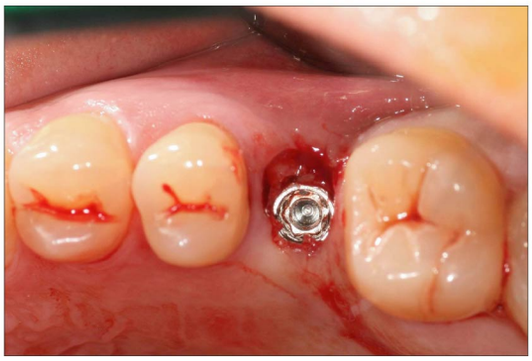
Compact the bone using bone expander(small to large size)
Bone compaction and ridge expansion with expander
(engine 40N/cm) deliver more comfort than with Mallet.
The depth of expander is affected by the bone density.

S.5-19

In D4 bone, use undersized expander
and condense with Bio-Oss.

S.5-20

Insert Implant(SM Submerged 4.5x12mm).

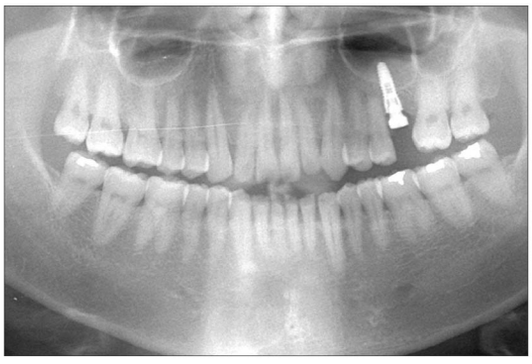


S.5-21

Control the depth in detail with Hand ratchet.
Connect healing abutment above the tissue level (0.5–1.0mm).

S.5-22

Final picture.



S.5-23

Panoramic Radiograph after Implant placement.

SM 6

Dr. Dong Geun Jung

Case | Implant placement on missing maxillary molar

Patient | F / 49yr

Area | # 14, 15, 16, 18, 19

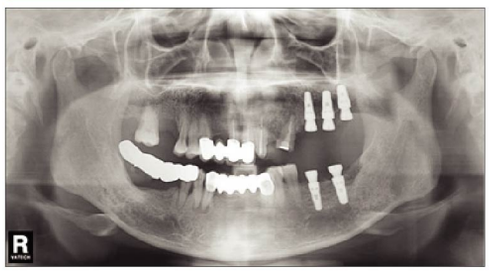
Product | DIO SM Implant
(4.5x14mm, 5.3x10mm, 5.3x14mm)

Treatment Plan | #12 GBR after extraction
#14, 15, 16 Implant
#18, 19 Block bone graft
#11–13 Porcelain

Overall Outcome | Restore missing teeth on right side. Because of atrophic ridge on #12, GBR is performed along with posterior Implants.

Pre-Op

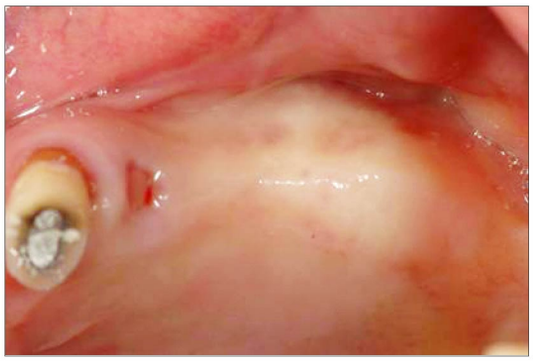
Post-Op



Maxilla Treatment

S.6-1

Pre-op panoramic radiograph.

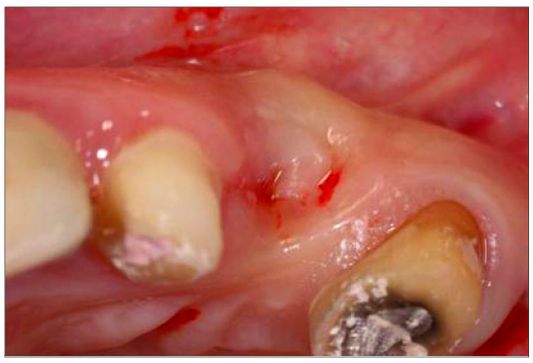


S.6-2

Pre-op occlusal view.

S.6-3

Note ridge defect on buccal surface.

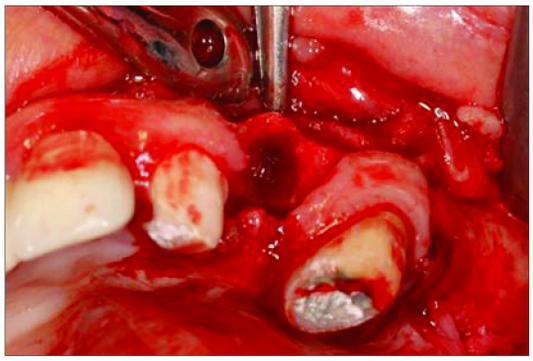


S.6-4

Confirm atrophic condition under pontic
– possible food impaction and retention.

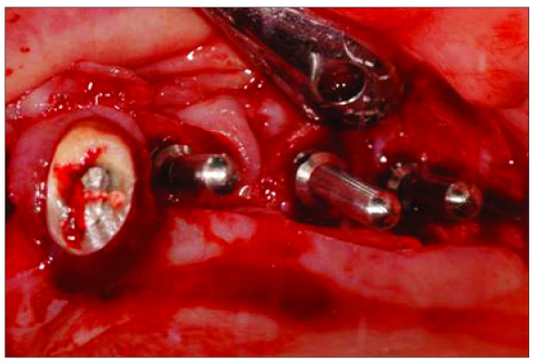
S.6-5

Confirm atrophic condition under pontic
– possible food impaction and retention.



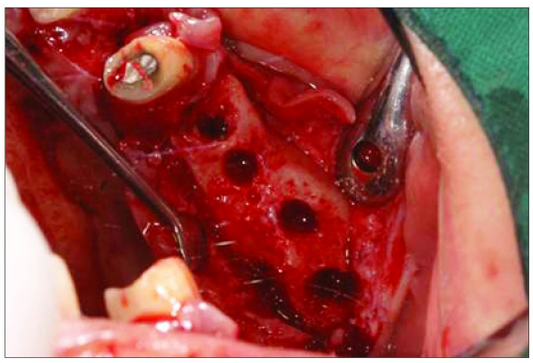
S.6-6

It might have problems functionally and esthetically with porcelain bridge due to severe atrophy.



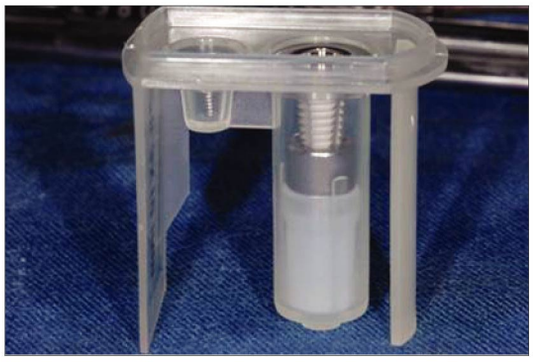
S.6-7

Confirm path with guide pins.
Enough drilling even in maxilla.



S.6-8

Osteotomy sites.



S.6-9

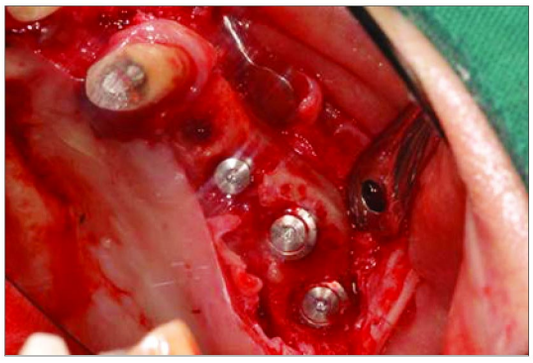
Package of DIO SM Implant.

S.6-10

Removal of SM Implant from package.

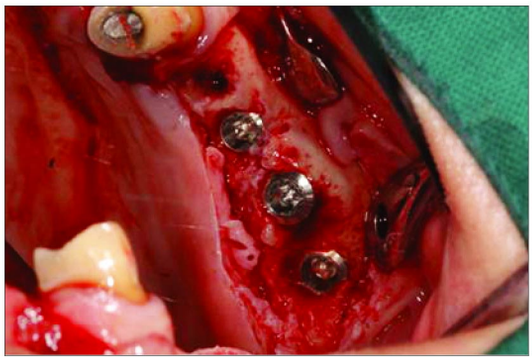
S.6-11

SM Implant.



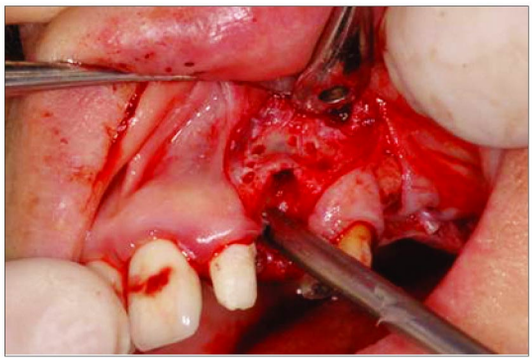
S.6-12

Place slightly deeper than bone level.



S.6-13

Place collar slightly submerged.

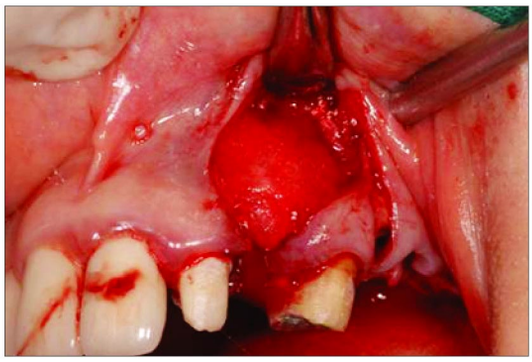


S.6-14

Perform decortification.

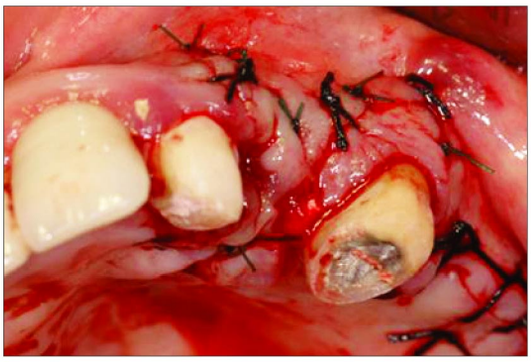
S.6-15

Apply graft.



S.6-16

Put membrane and suture it with absorbable suture.



S.6-17

Suture.

S.6-18

Post-op panoramic radiograph.

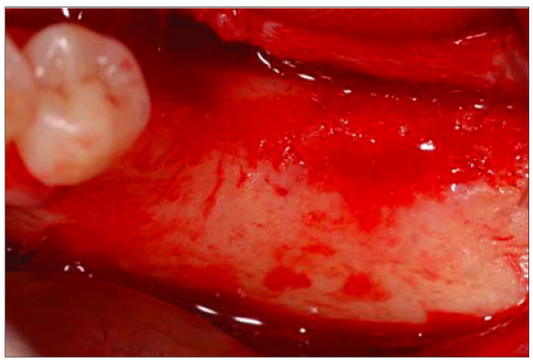
Mandible treatment

S.6-19

Panoramic radiograph after Implant placement on maxilla .

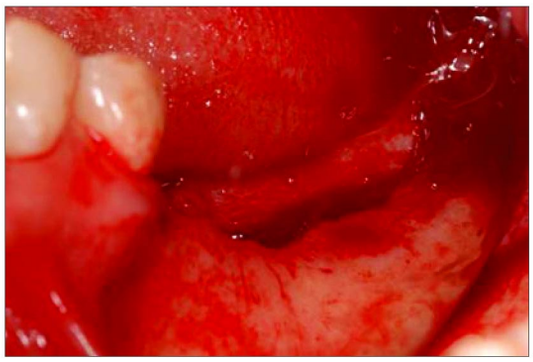
S.6-20

Narrow ridge with minimal keratinized gingival
– possible risk of food impaction and gingival recession.



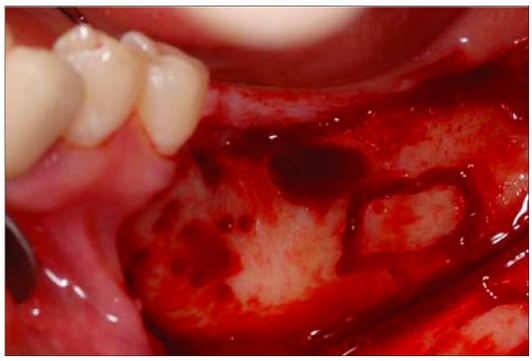
S.6-21

Raised flap.



S.6-22

Raise flap in one stroke to prevent edema and bleeding.



S.6-23

Take block bone for graft.

S.6-24

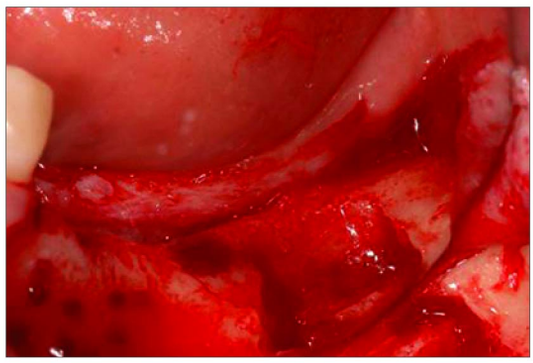
Lance drill, 2.0drill and drill extension.

S.6-25

DIO tapered drill.

S.6-26

Autograft- block bone.



S.6-27

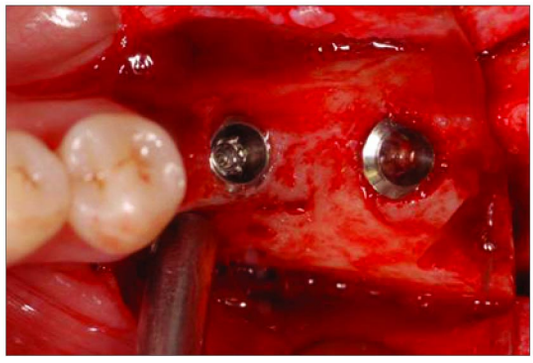
After drilling.

S.6-28

Make sure the complete engagement of connector to fixture. Replace connector after 20 cases.

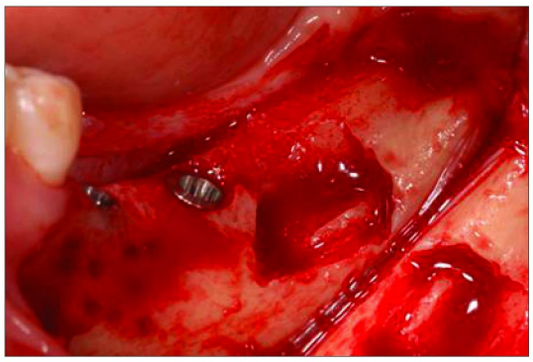
S.6-29

Complete engagement.



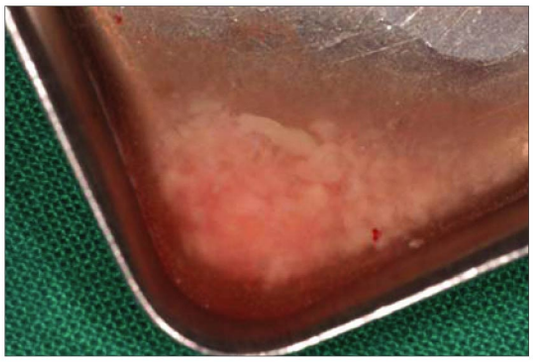
S.6-30

Perform GBR for long term prognosis.



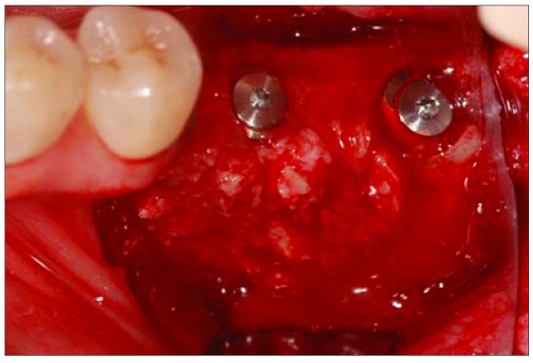
S.6-31

Donor and recipient sites.



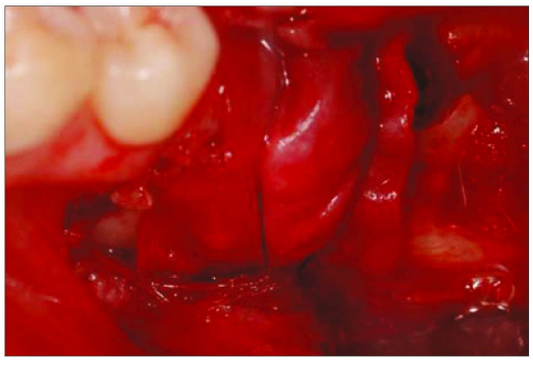
S.6-32

Autogenous bone particle.



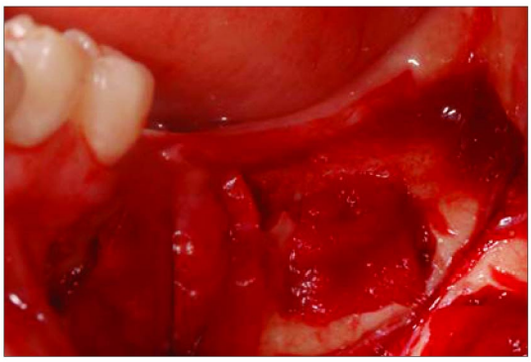
S.6-33

Bone graft.



S.6-34

Apply absorbable membrane on grafted area.

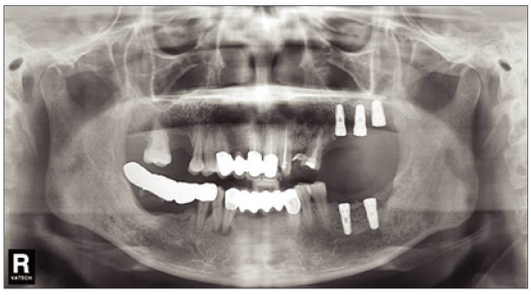


S.6-35

Collagen packing on donor site.

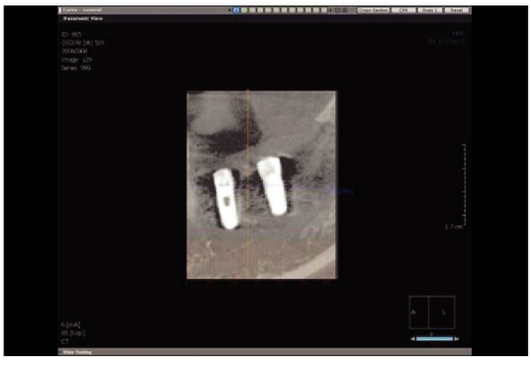
S.6-36

Suture.



S.6-37

Post-op panoramic radiograph.



S.6-38

Scan after surgery.

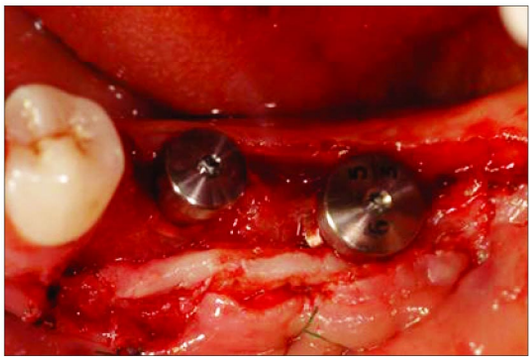
Second Surgery

S.6-39

Second surgery(mandible).

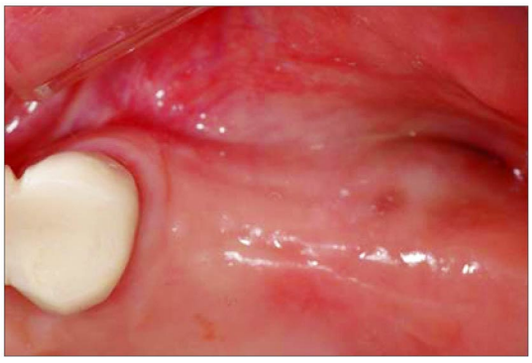
S.6-40

Incision with CO2 laser and perform APF.



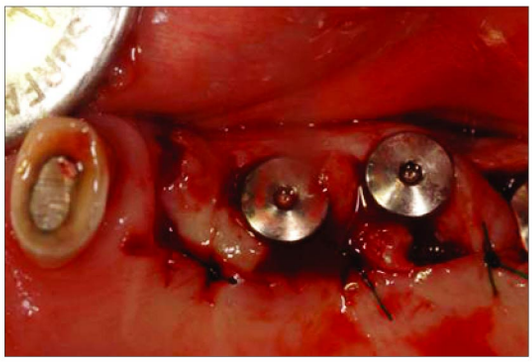
S.6-41

Flap(mandible).



S.6-42

Second surgery(maxilla).

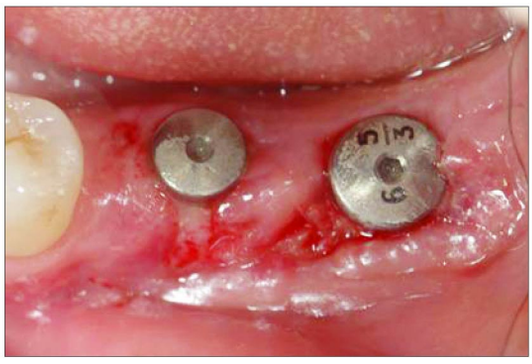


S.6-43

Maxillary flap.

S.6-44

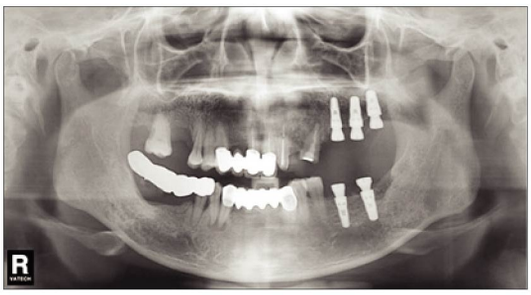
2 weeks after second surgery(maxilla).



S.6-45

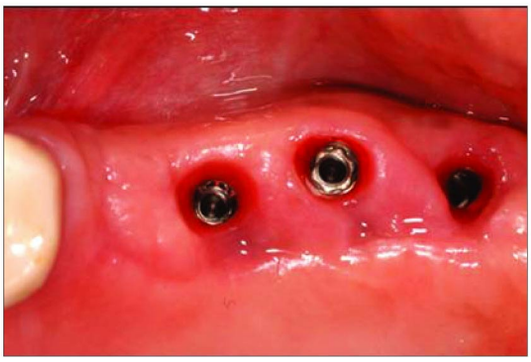
2 weeks after second surgery(mandible).

Prosthesis



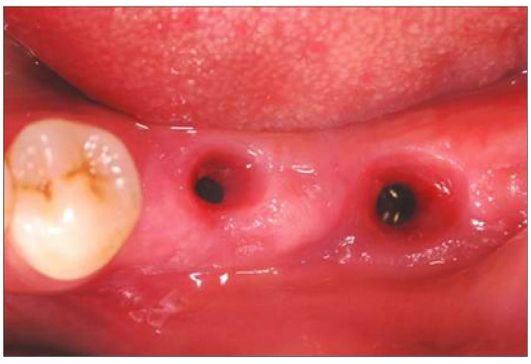
S.6-46

Panoramic radiograph after second surgery.



S.6-47

Preserve thick gingiva on buccal and lingual sides after 2nd surgery (more than 2mm, maxilla).



S.6-48

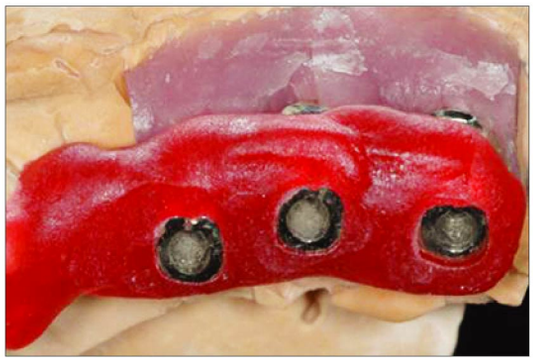
Preserve thick gingiva on buccal and lingual sides after 2nd surgery (more than 2mm, mandible).

S.6-49

Connect impression copings with pattern resin (maxilla).

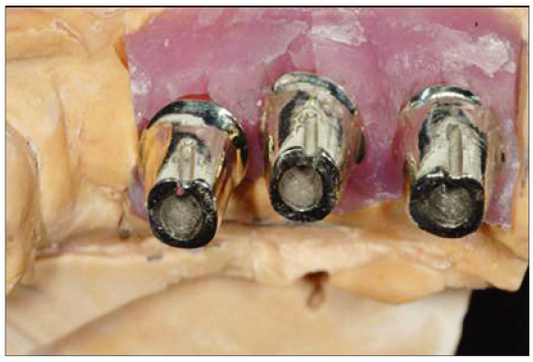
S.6-50

Connect impression copings with pattern resin (mandible).



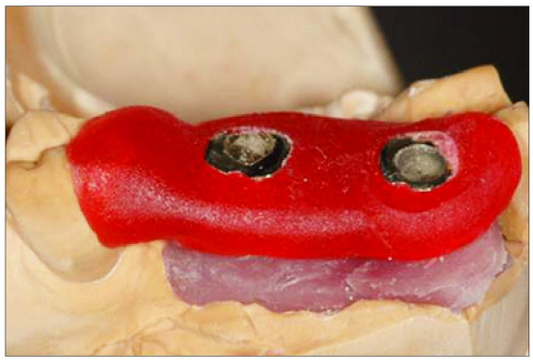
S.6-51

Repositioning zig.



S.6-52

Abutments in cast.

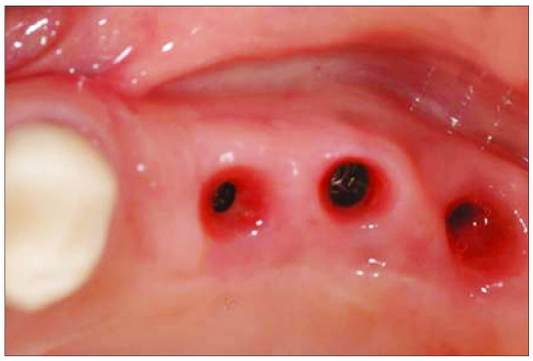


S.6-53

Repositioning zig.

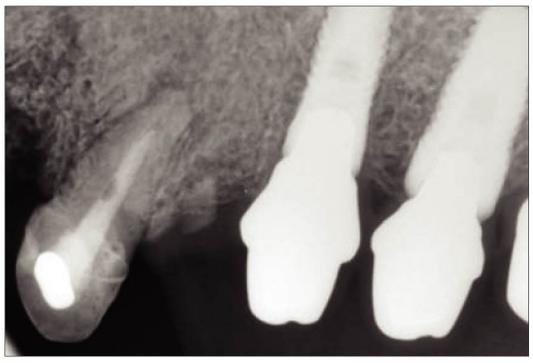
S.6-54

Abutments.



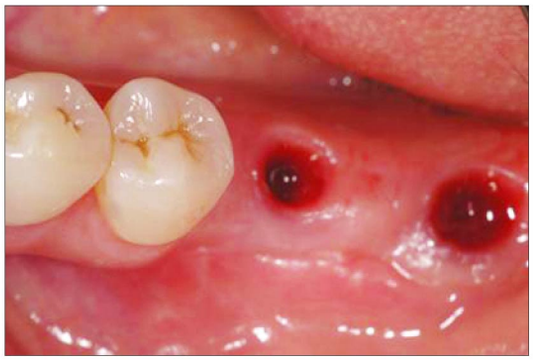
S.6-55

Before delivery of abutment(maxilla).



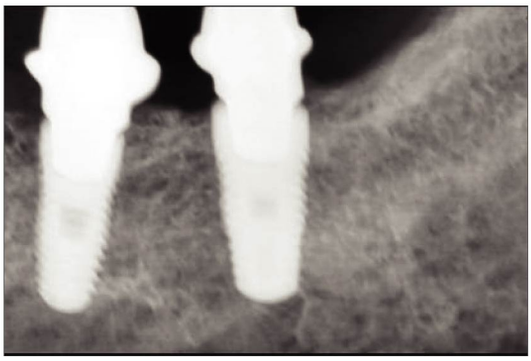
S.6-56

Confirm passive fit and platform switching with radiograph after connection.



S.6-57

Premature gingival healing.



S.6-58

Radiograph.

S.6-59

Observe larger than 2mm keratinized gingiva buccally and lingually.
The closer that space between abutments, less food impaction.

S.6-60

Observe larger than 2mm keratinized gingiva buccally and lingually.
The closer that space between abutments, less food impaction.

S.6-61

Adjust the inter-occlusal space to control crown root ratio on Implants.

S.6-62

Maxillary prosthesis.

S.6-63

Mandibular prosthesis.

S.6-64

Intercuspitation.

SM 7

Dr. Woo Sik Kim

Case | Restore missing maxillary anterior teeth with SM Implant.

Patient | M / 44yrs

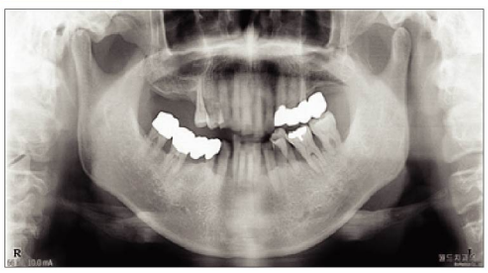
Area | #9

Product | DIO SM Implant
(4.5x14mm)

Treatment Plan | Prognosis of #9 is hopeless, restore with implant after extraction. Labial defect of alveolar bone requires bone graft after soft tissue healing. Enough gingival thickness and keratinized gingiva result in good prognosis of bone graft.

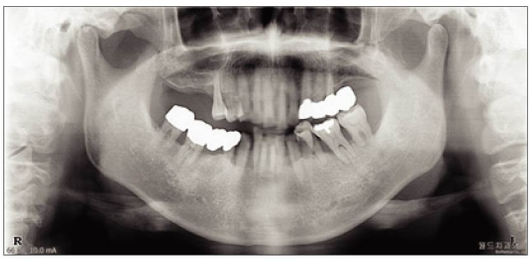
Overall Outcome | SM Implant is indicated for maxillary anterior case as its properties; internal connection, platform switching, and tapered type fixture. Currently in temporary phase.

Pre-Op



Post-Op

Maxilla Treatment



S.7-1

Pre-op radiograph.

S.7-2

Pre-op clinical view.

S.7-3

#9 extrusion with severe mobility.

S.7-4

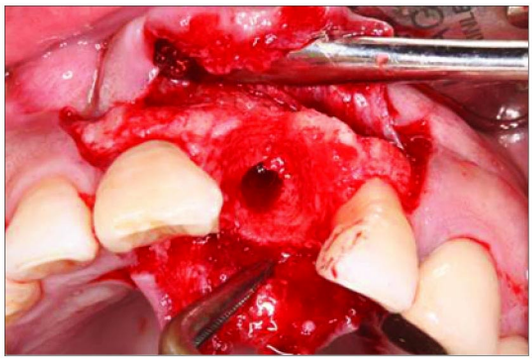
Clinical picture after extraction of #9. Implant on #25 is also scheduled.

S.7-5

Resin bonded provisional restoration using extracted tooth #9.

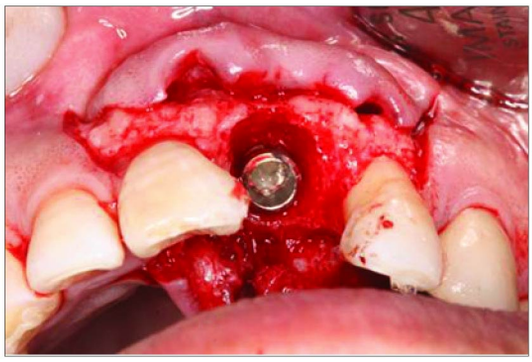
S.7-6

1 month healing.



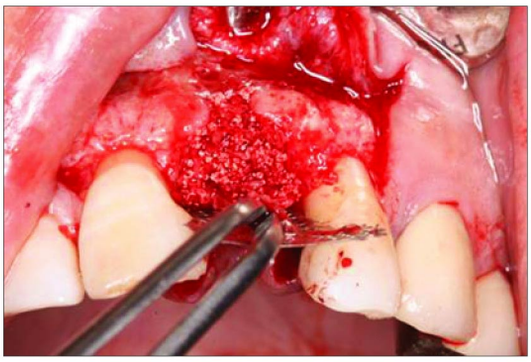
S.7-7

Final drill.



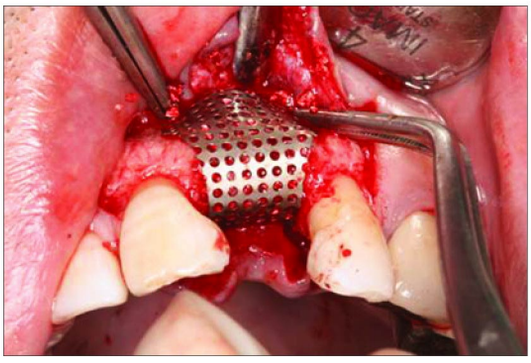
S.7-8

After insertion of implant.



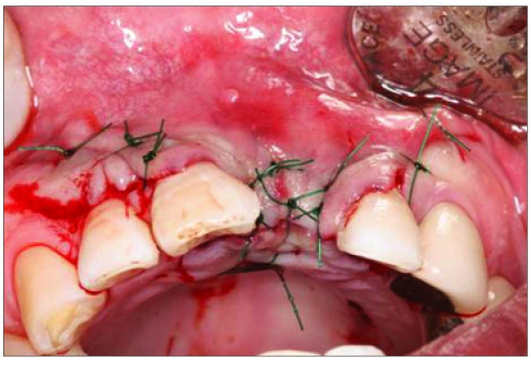
S.7-9

Apply bone graft.



S.7-10

Fix with Ti-mesh and micro screw to maintain the contour and cover with absorbable membrane.

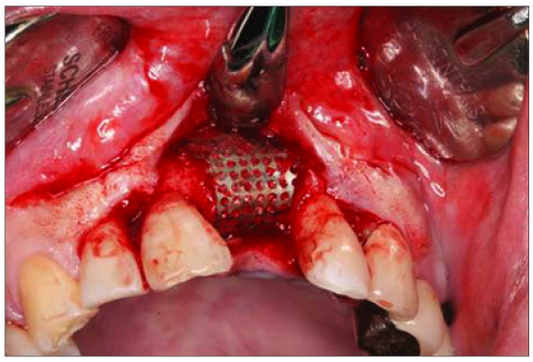


S.7-11

Suture.

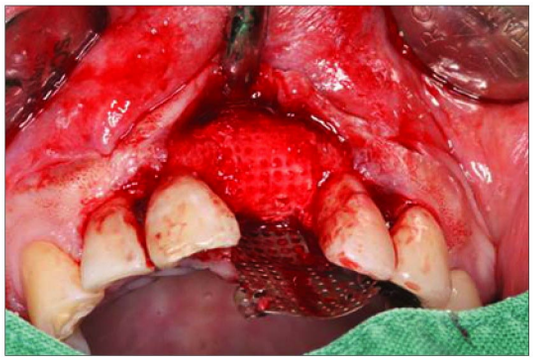
S.7-12

5 months healing after Implant placement.



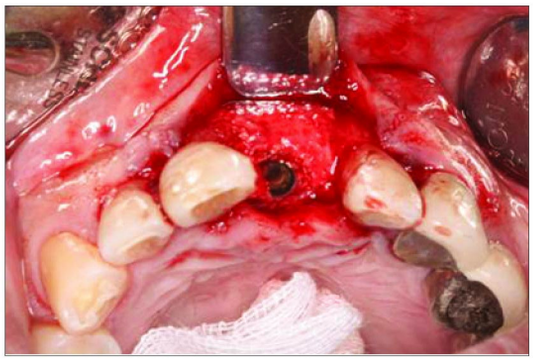
S.7-13

Raise flap during 2nd surgery.



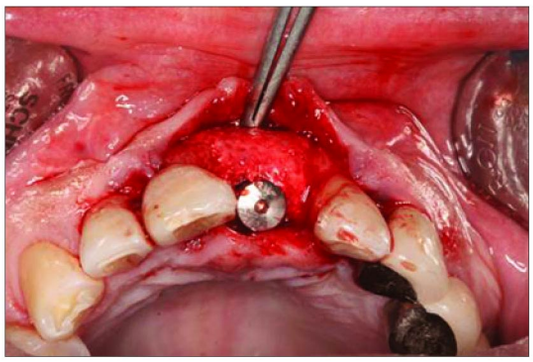
S.7-14

Remove micro screw and Ti-mesh.
Observe incomplete bone remodeling.



S.7-15

Easily remove newly formed bone with curette
– incomplete bone remodeling.



S.7-16

Connect healing abutment.

S.7-17

Suture.

S.7-18

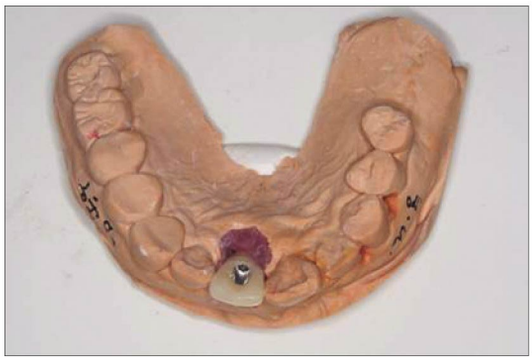
After removal of suture.

S.7-19

Connect transfer impression coping for provisional restoration.

S.7-20

Before delivery of provisional restoration.



S.7-21

Fabricate screw type provisional restoration using temporary abutment.

S.7-22

After delivery of provisional restoration. Observe additional contour change for the space between #8 and 9.

S.7-23

Panoramic radiograph after insertion.

SM 8

Dr. Sang Jik Lee

Case | Restore missing maxillary and mandibular posterior teeth with sinus elevation.

Patient | M / 44yrs

Treatment Duration | 4 months

Area | #21, 28, 29, 30

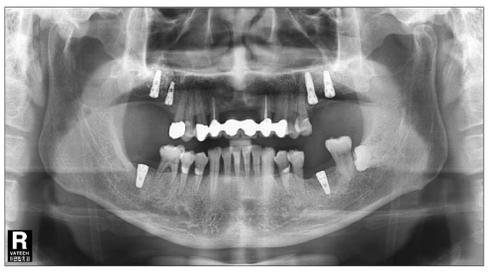
Product | DIO SM Implant
(3.8x12mm, 3.8x14mm, 4.5x10mm, 4.5x12mm, 5.3x10mm)

Treatment Plan | Sinus elevation.
Implant placement on mandible.
Implant placement on maxilla.

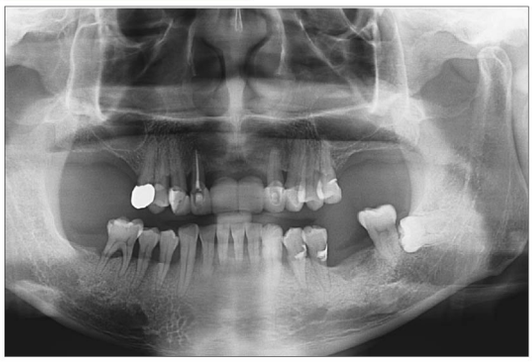
Overall Outcome | Compare two different synthetic bone graft materials.
Use Osteon + Surefuse 1cc each on right side sinus.
Use MBCP + Surefuse 1cc each on left side sinus.

Pre-Op

Post-Op

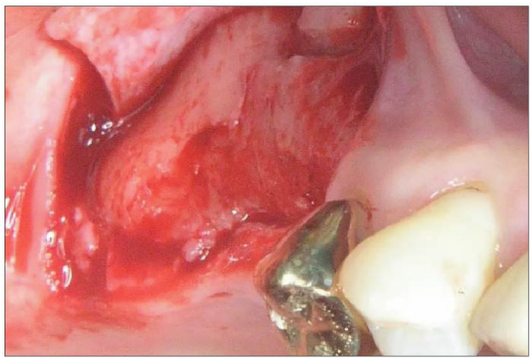


Maxilla Treatment



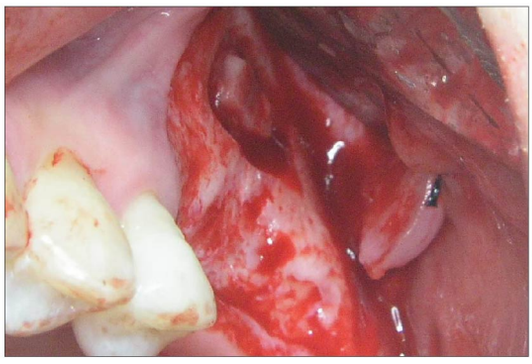
S.8-1

Pre-op panoramic radiograph.



S.8-2

Open window in sinus on the right side.



S.8-3

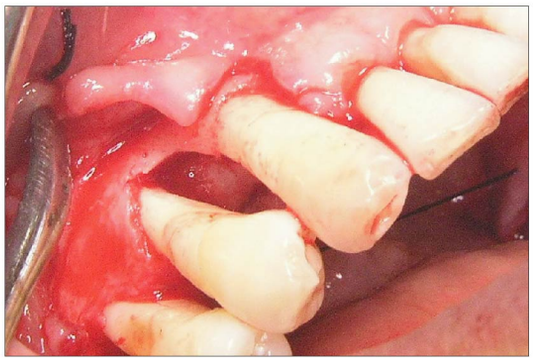
Open window in sinus on the left side.

S.8-4

Bone substitute used in sinus elevation.

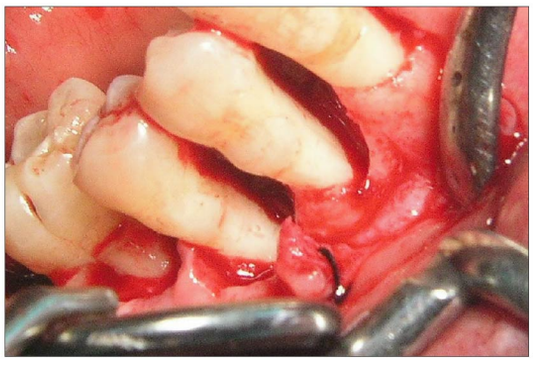
S.8-5

Panoramic radiograph after elevation.



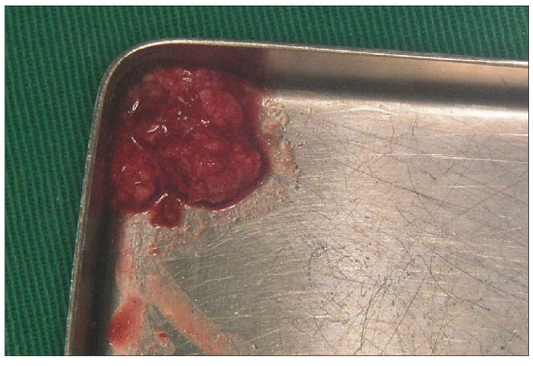
S.8-6

Infrabony pocket on #21.



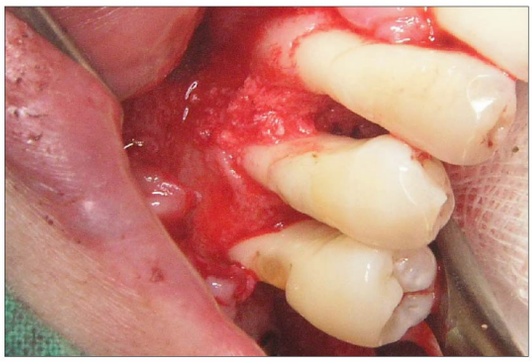
S.8-7

Infrabony pocket on # 28, 29, 30.



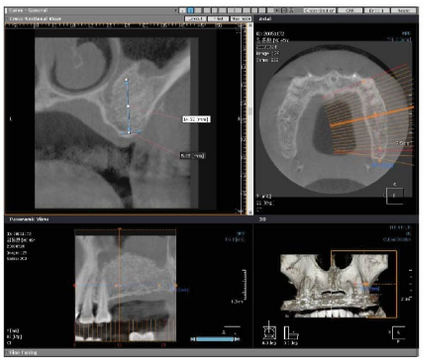
S.8-8

Use Endogain + Bio-Oss for the treatment of infrabony defects on mandible.



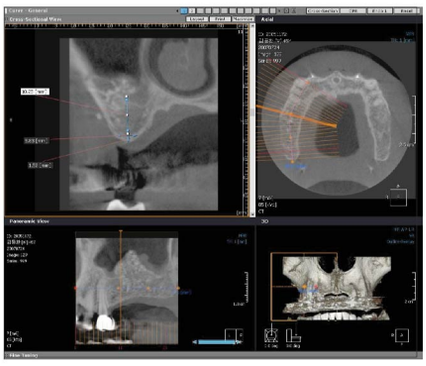
S.8-9

Bone graft in the pocket.



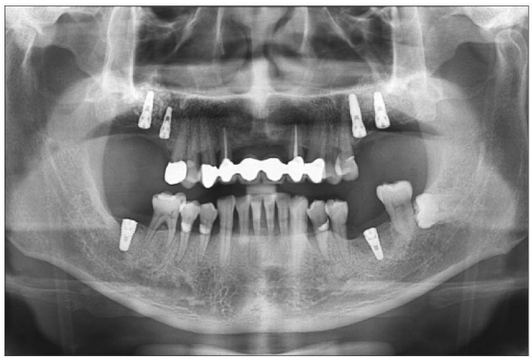
S.8-10

CT – maxillary left side
(MBCP 1cc + Surefuse 1cc).



S.8-11

CT – maxillary right side
(Osteon 1cc + Surefuse 1cc).



S.8-12

Post-op panoramic radiograph.

SM 9

Dr. Sang Jik Lee

Case | Implant therapy with autogenous bone graft on the area of alveolar bone loss due to periodontitis.

Patient | M / 72yr

Treatment Duration | 5 months

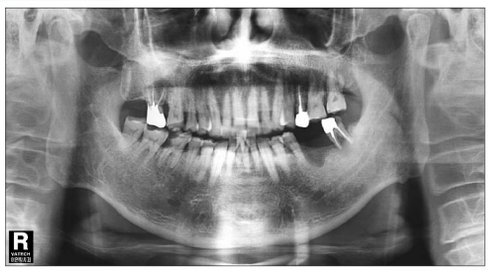
Area | #2, 18, 19

Product | DIO SM Implant
(5.3x12mm, 5.3x12mm, 5.3x14mm)

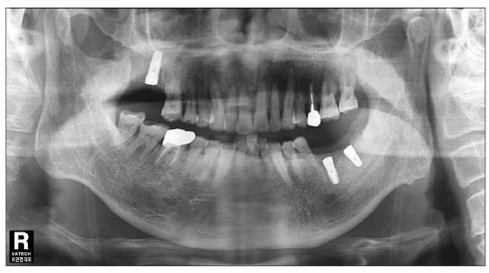
Treatment Plan | 1.Early Implant placement & guided bone regeneration on #2 1 month after extraction.
2.Implant placement on #18, 19 & guided bone regeneration on #18, 19 using lingual tori.

Overall Outcome | 1.#2 had severe periodontitis, showed type IV bony defect after extraction. Implant placement after 1 month with autograft and calcium membrane on the gap around Implant.
2.#18, 19 had severe periodontitis and require implant with autogenous bone graft from tori and retromolar pad.

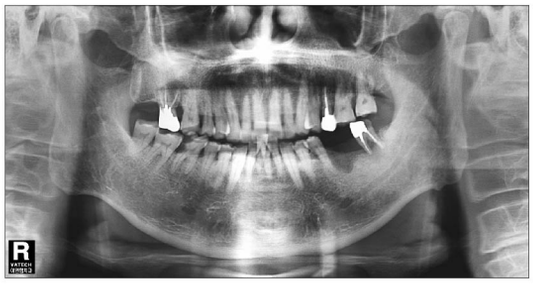
Pre-Op



Post-Op

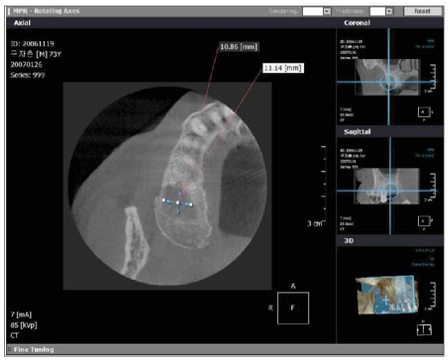


Mandible treatment Maxilla Treatment



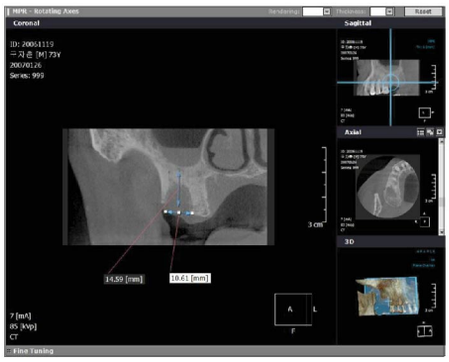
S.9-1

Pre-op panoramic radiograph.



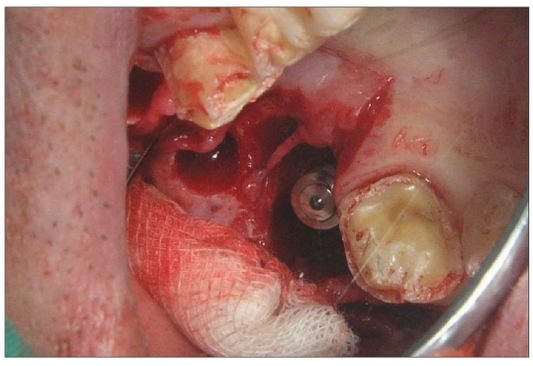
S.9-2

CT around #2, observe large bony defect.
Require implant with bone graft.



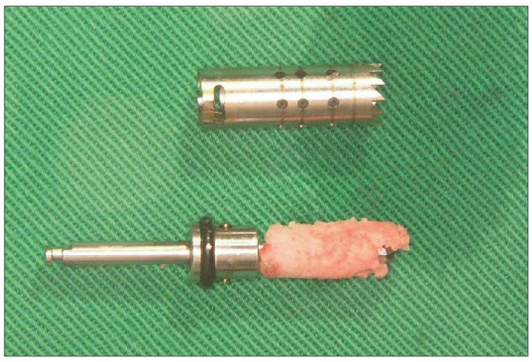
S.9-3

CT around #2, observe large bony defect.
Require implant with bone graft.



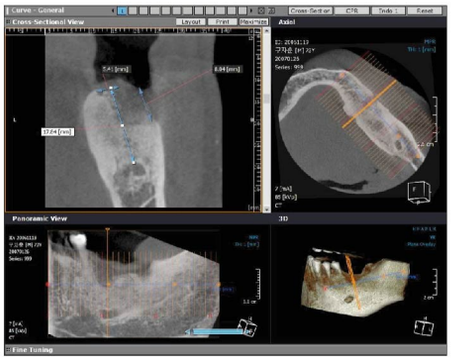
S.9-4

Insert implant on the extraction socket.
Take autogenous bone from posterior to the socket.



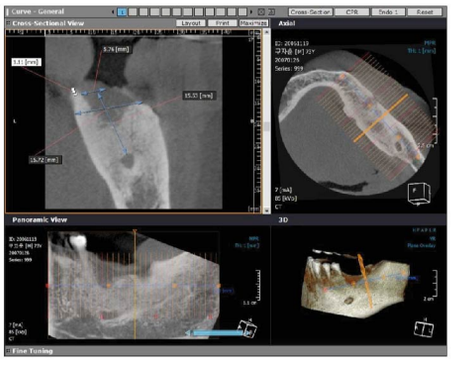
S.9-5

Autogenous bone using EZ grafter.



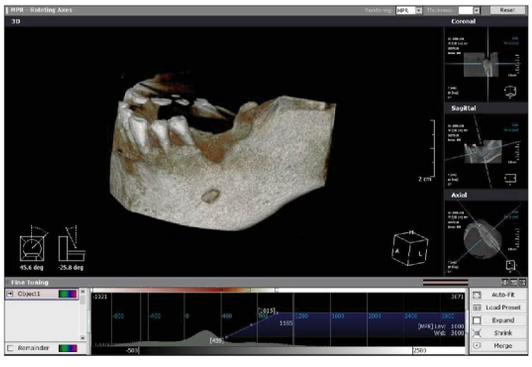
S.9-6

CT around #18, 19, observe large buccal bony defect because of periodontitis.



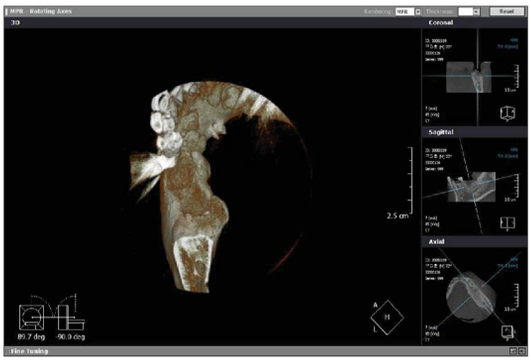
S.9-7

CT around #18, 19, observe large buccal bony defect because of periodontitis.



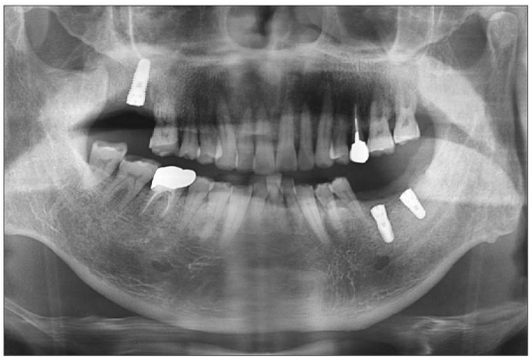
S.9-8

Bone defect area.



S.9-9

Lingual tori for autograft on ligual side on #20, 21, 22.



S.9-10

Post op panoramic radiograph.

SM 10

Dr. Sang Jik Lee

Case | Remove bridge #18–19–20 due to caries on #18 and place implants on #18, 19.

Patient | F / 66yr

Treatment Duration | 4 months

Area | #18, 30, 31

Product | DIO SM Implant
(3.8x14mm, 5.3x12mm, 5.3x14mm)

Treatment Plan | 1.#18 immediate Implant + autogenous bone graft to fill the gap between fixture and extraction socket.
2.#19 Implant.
3.#30, 31 Implant.

Overall Outcome | Immediate Implant placement on mesial side of extraction socket and autogenous bone graft using EZ grafter from retromolar pad area to shorten treatment duration.

Pre-Op

Post-Op

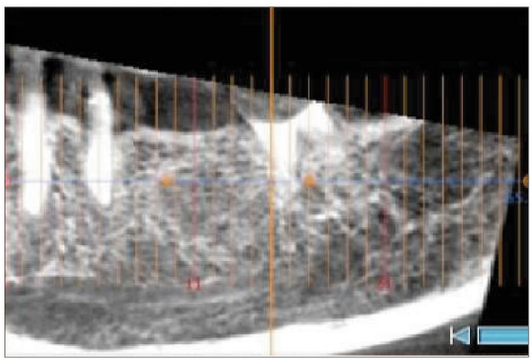
Maxilla Treatment

S.10-1

Pre op panoramic radiograph.

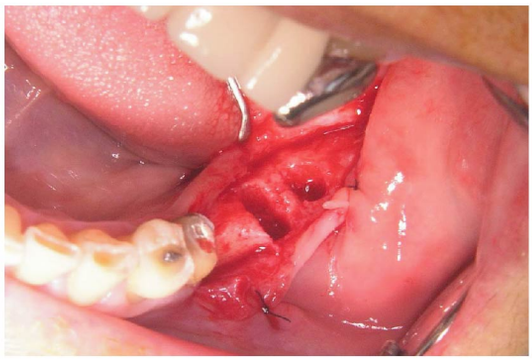
S.10-2

Remaining root #18(1 week after extraction).



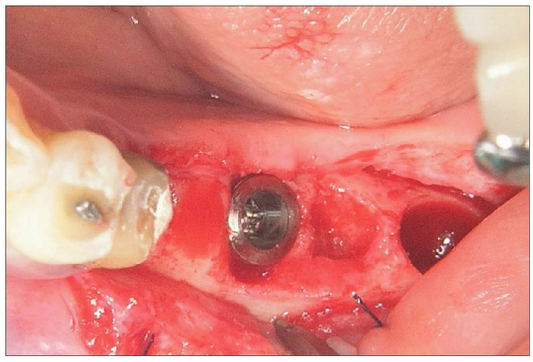
S.10-3

#18, 19 CT scan.



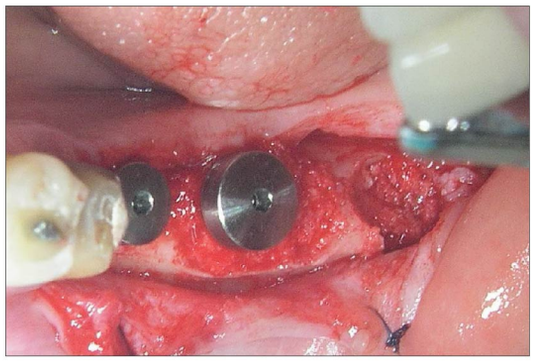
S.10-4

Open flap after extraction of #18.



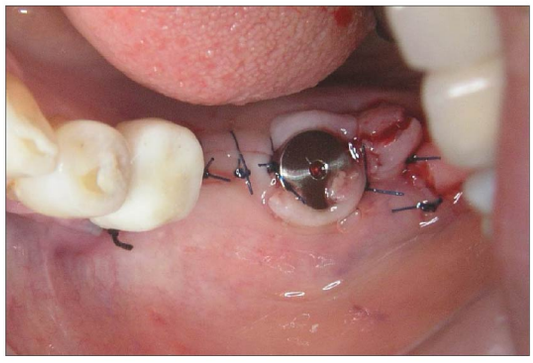
S.10-5

Implant placement on mesial root side.



S.10-6

Fill the gap using autograft from retromolar pad area with EZ grafter.



S.10-7

Connect healing abutment after bone graft.

S.10-8

Post-op panoramic radiograp.

SM 11

Dr. Sang Jik Lee

Case | Black bone graft & delayed implant placement.

Patient | M / 47yr

Treatment Duration | 7 months

Area | #2, 3, 18, 19, 28

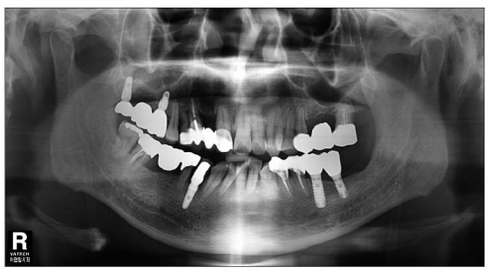
Product | DIO SM Implant(4.5x8mm, 4.5x10mm, 4.5x12mm)
DIO Internal Implant(4.0x8mm, 4.5x12mm)

Treatment Plan | #1, 3 Implant placement & #1–2–3 fixed partial denture.
#18, 19 Implant placement & Implant crown.
#28 block bone graft (donor site; left retromolar pad area)
& delayed Implant placement + single Implant crown.

Overall Outcome | Recommend bone graft before implant placement in area of severe alveolar bone loss. Autogenous bone is considered as gold standard. Use block bone graft with Trephine drill for #28 bone defect.

Pre-Op

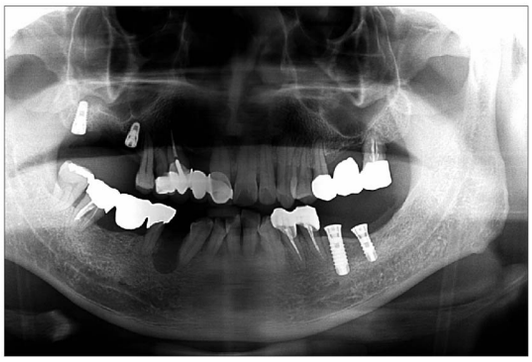
Post-Op



Mandible treatment | Maxilla Treatment

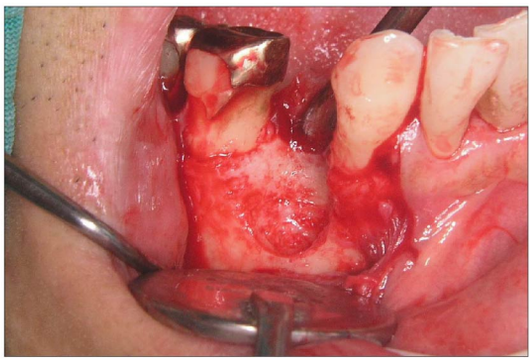
S.11-1

Extract #2, 18.



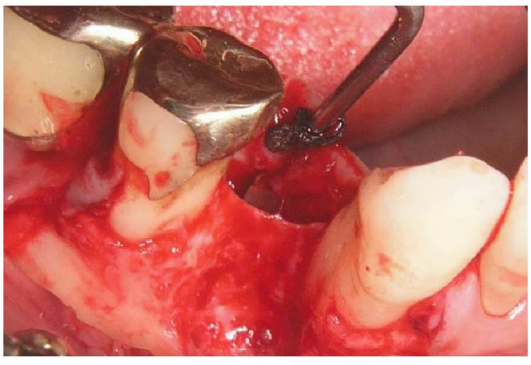
S.11-2

Insert implants on #1, 3, 18, 19.



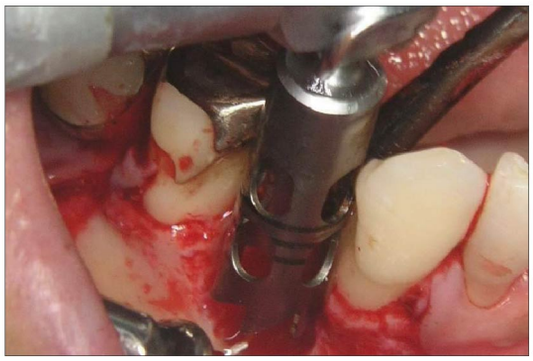
S.11-3

Alveolar bone loss on buccal side of #28.



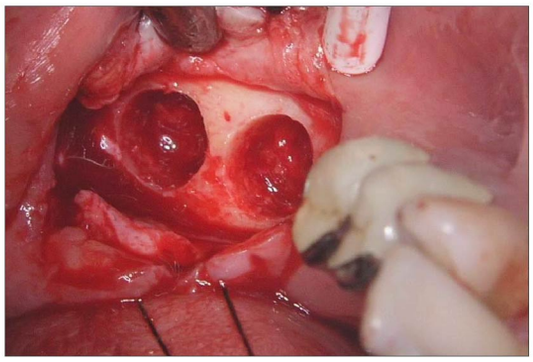
S.11-4

Alveolar bone loss on buccal side of #28.



S.11-5

Prepare recipient site with trephine drill.

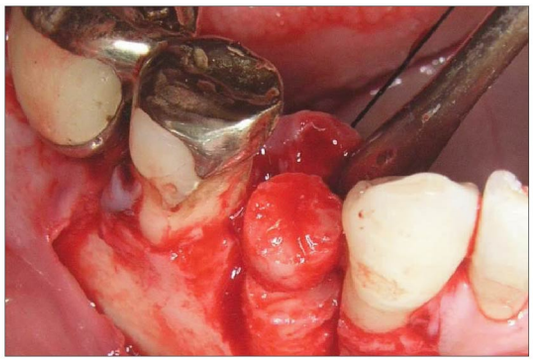


S.11-6

Obtain autograft from retromolar pad with Trephine drill.

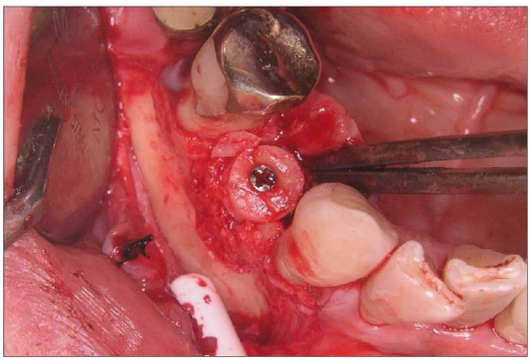
S.11-7

Place block bone in recipient site.



S.11-8

Place block bone in recipient site.

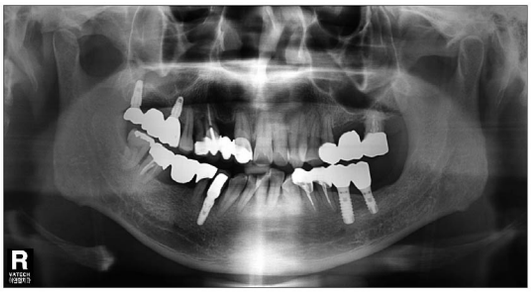


S.11-9

Fix bone graft with screw.

S.11-10

Panoramic radiograph after Implant placement with bone graft.



S.11-11

Panoramic radiograph after prosthesis.

SM 12

Dr. Seung Il Um

Patient	F/ mid 50's
Treatment Duration	3 months
Area	#30, 31
Product	DIO SM Implant (4.5x10mm)
Treatment Plan	One-stage Implant placement on #30,31. No major problem except slight super-eruption of opposing dentition.

S.12-1

Pre-op panoramic radiograph.

S.12-2

One-stage Implant placement.

S.12-3

Impression taking 1 & 1/2 months after Implant placement.

S.12-4

Buccal view :
applying torque after abutment connection.

S.12-5

Occlusal view.

S.12-6

Buccal view: Definitive prosthesis.

S.12-7

Occlusal view: Definitive prosthesis.

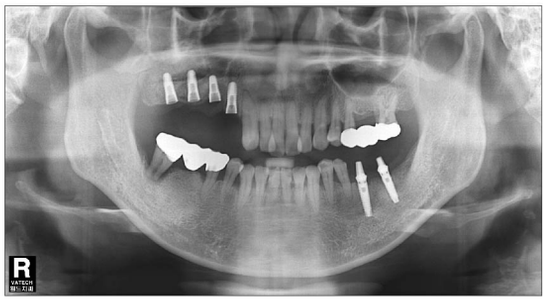
SM 13

Dr. Seung Il Um

Patient	F / Early 40's
Treatment Duration	10 months
Area	#2, 3, 4, 5
Product	DIO SM Implant (5.3x10mm, 5.3x12mm)
Treatment Plan	No premolars and molars on maxillary right sextant. Failing pre-existing FPD on mandibular right sextant. SM Implant placement with osteotome technique on maxillary right sextant.

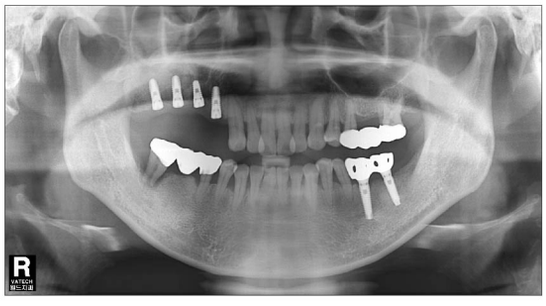
S.13-1

Pre-op panoramic radiograph.



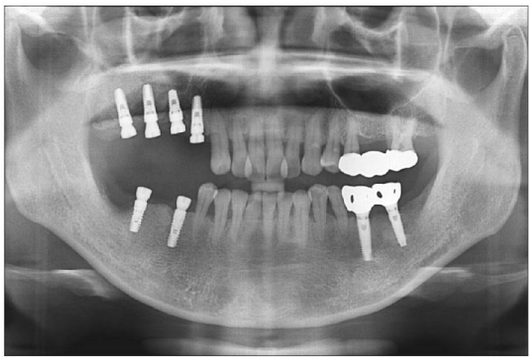
S.13-2

SM Implant placement with osteotome technique.



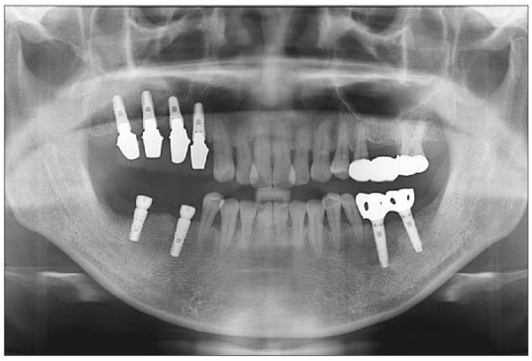
S.13-3

Healing period.



S.13-4

Stage II surgery 4 months after placement.



S.13-5

Radiographic view :
connected custom abutment.

S.13-6

Clinical view.

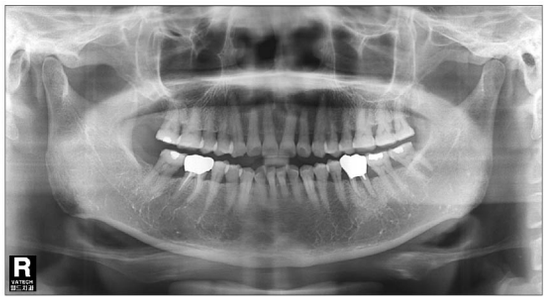
S.13-7

Definitive prosthesis.

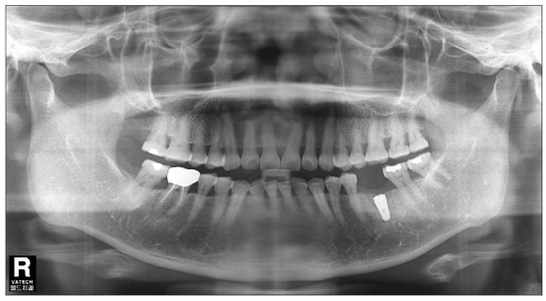
SM 14

Dr. Seung Il Um

Patient	F / Early 60's
Treatment Duration	2 months
Area	#19
Product	DIO SM Implant
Treatment Plan	#19 poor prognosis, immediate placement. Stage II surgery 2 months after placement.

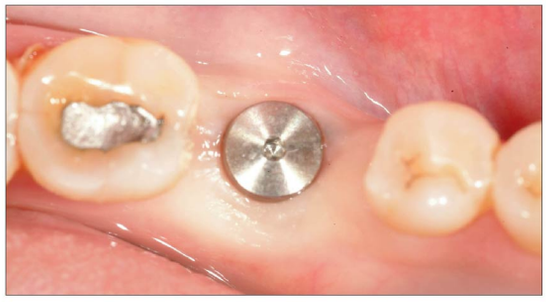


S.14-1 Pre-op panoramic radiograph.



S.14-2 Immediate placement.

S.14-3 Clinical view.



S.14-4 Stage II surgery 2 months after placement.

S.14-5

Panoramic view, 2 months after placement.

S.14-6

Abutment in place.

S.14-7

Abutment in place.

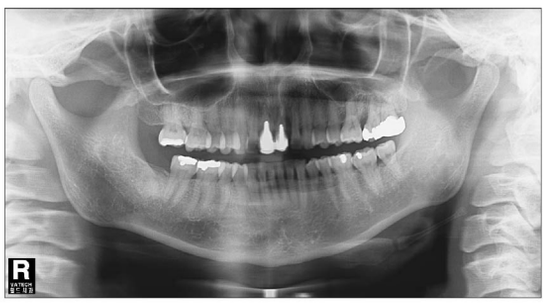
S.14-8

Cement-retained definitive prosthesis.

SM 15

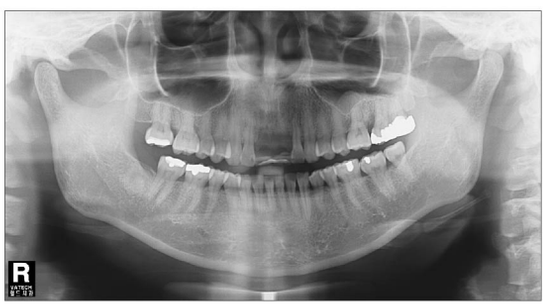
Dr. Seung Il Um

Patient	F / Early 40's
Treatment Duration	8 months
Area	#8, 9
Product	DIO SM Implant (4.5x12mm)
Treatment Plan	Socket preservation due to thin buccal plate. Implant placement 2 months after socket preservation.



S.15-1

Pre-op panoramic radiograph.



S.15-2

After extraction, panoramic view.

S.15-3

SM Implant placement 2 months after socket preservation.

S.15-4

Connected custom abutment
2 months after implant placement.

S.15-5

Definitive prosthesis.

SM 16

Dr. Seung Il Um

Patient	M / 70's
Treatment Duration	4 months
Area	#31
Product	DIO SM Implant (4.5x10mm)
Treatment Plan	Stage II surgery 2 months after placement.

S.16-1

Pre-op panoramic radiograph.

S.16-2

Stage II surgery 2 months after placement.

S.16-3

Stage II surgery 2 months after placement.

S.17-4

Healing abutment connection.

S.16-5

Screw-retained definitive prosthesis.

S.16-6

Screw-retained definitive prosthesis.

SM 17

Dr. Seung Il Um

Patient	F / Early 40's
Treatment Duration	4 months
Area	#6, 11
Product	DIO SM Implant (3.8x12mm)
Treatment Plan	Retained deciduous canines in maxilla. Extraction of retained deciduous teeth. SM Implants placement.

S.17-1

Pre-op panoramic radiograph.

S.17-2

DIO SM Implants(3.8x12mm) placement, healing abutment connection.

S.17-3

Impression taking 2 months after placement.

S.17-4

Abutment connection.

S.17-5

Definitive prosthesis.

SM 18

Dr. Seung Il Um

Patient	F / Early 30's
Treatment Duration	4 months
Area	#19, 30
Product	DIO SM Implant (4.5x10mm)
Treatment Plan	Patient presented as #19, 30 are missing. SM Implants placement.

S.18-1

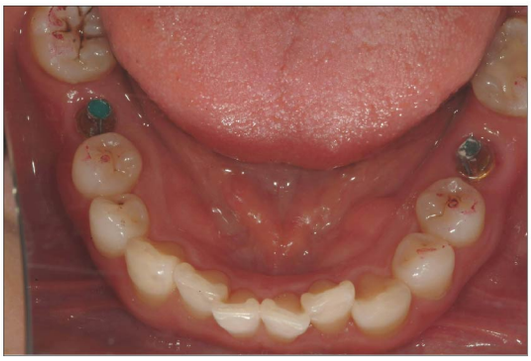
Pre-op panoramic radiograph.

S.18-2

DIO SM Implants(4.5x10mm) placement, healing abutment connected.

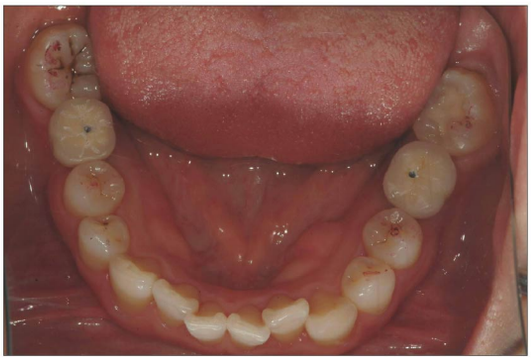
S.18-3

2 months healing period.



S.18-4

Abutment connection.



S.18-5

Definitive prosthesis.

DIO Implant System

Clinical Cases

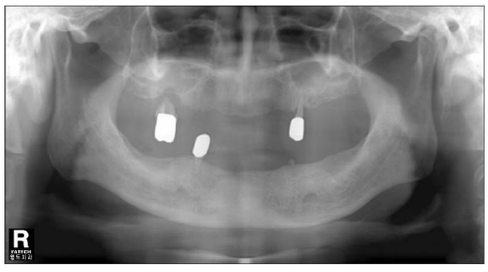
ProTem / Secure

ProTem / Secure 1

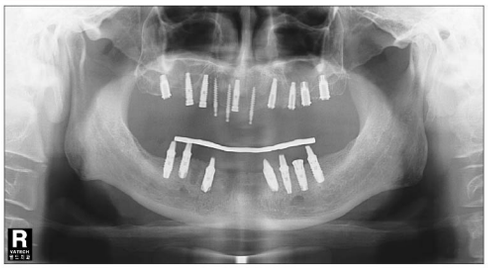
Dr. Seung Il Um

Case	Implant placement in edentulous maxilla and mandible.
Patient	M / Early 50's
Treatment Duration	6 months
Area	Complete maxilla and mandible
Product	DIO ProTem / Secure Implant DIO External/Internal type implant
Treatment Plan	Extraction of remaining teeth and ProTem / Secure Implant placement for supporting pre-existing denture. Sequential Implant placement.
Overall Outcome	Decide cement-retained for definitive prostheses.

Pre-Op



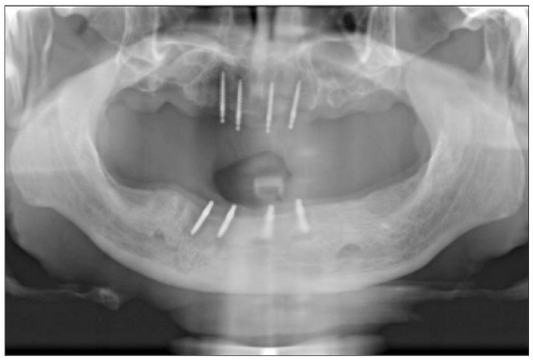
Post-Op



Mandible treatment | Maxilla Treatment

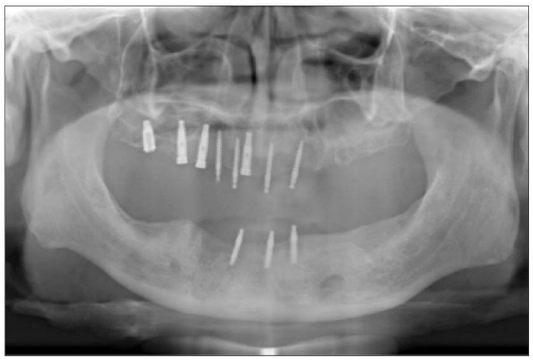
P.1-1

Pre-op panoramic view.



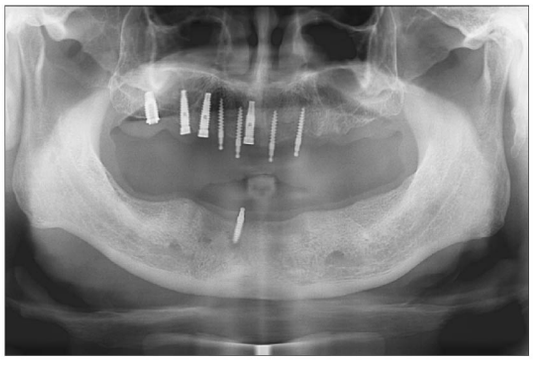
P.1-2

ProTem / Secure Implants are supporting pre-existing denture.



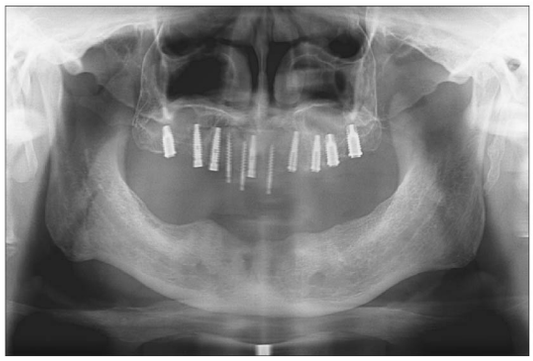
P.1-3

External type Implants placement in maxillary right sextant one ProTem / Secure Implant in mandible was removed.



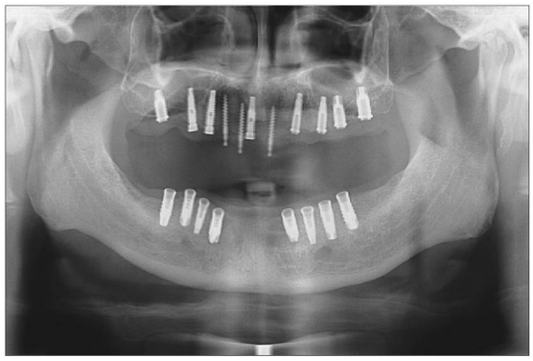
P.1-4

ProTem Implants / Secure in mandible were removed.



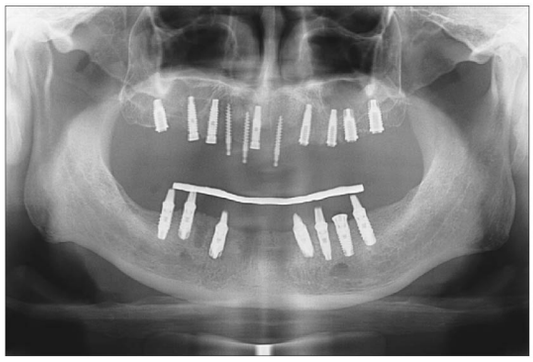
P.1-5

External type Implants placement in maxillary left sextant.



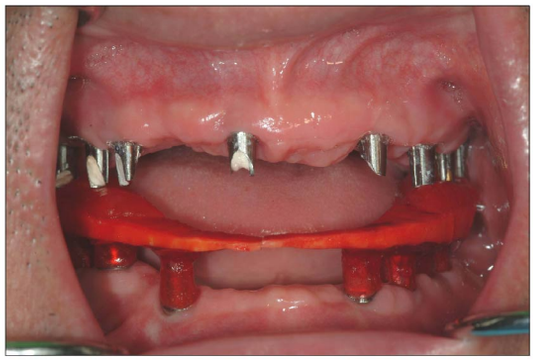
P.1-6

Internal type Implants placement in mandible and immediate loading.



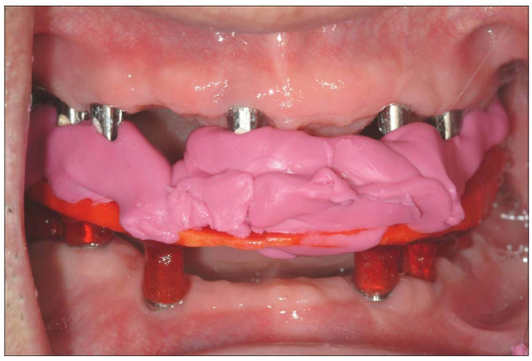
P.1-7

Implant provisional restoration in mandible.



P.1-8

Abutment connection and recording vertical dimension recording.



P.1-9

Recording vertical dimension.

P.1-10

Evaluating wax-up intra-orally.

P.1-11

Evaluating wax-up intra-orally.

P.1-12

Metal framework try-in.

P.1-13

Picture showed wax–try in, not metal frame.

P.1-14

Metal framework try–in, mandible.

P.1-15

Maxilla master model.

P.1-16

Mandible master model.

P.1-17

Definitive prostheses bisbake try-in.

P.1-18

Mandible definitive prosthesis, bisbake try-in.

P.1-19

Maxilla definitive prosthesis, bisbake try-in.

P.1-20

Definitive prosthesis, glazing.

P.1-21

Maxilla definitive prosthesis, glazing.

P.1-22

Mandible definitive prosthesis, glazing.

P.1-23

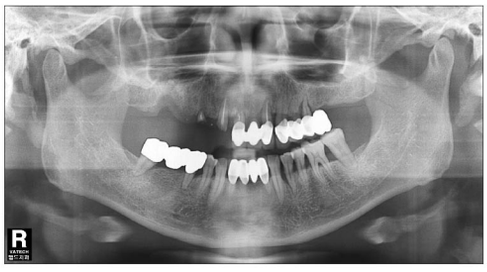
Patient facial view.

ProTem / Secure 2

Dr. Seung Il Um

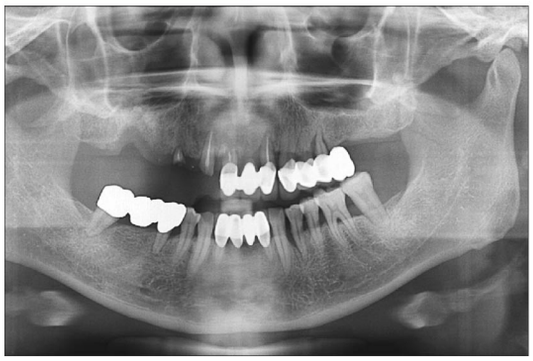
Case	Fixed provisional restoration retained by ProTem / Secure Implants.
Patient	F / Late 40's
Treatment Duration	In process
Area	Complete maxilla
Product	DIO ProTem / Secure Implant (2.5x12mm, 2mm cuff)
Treatment Plan	Extraction of remaining teeth and root tips. ProTem Implant placement for fixed provisional restoration.
Overall Outcome	ProTem / Secure Implant was placed to make fixed provisional restoration. Fixed provisional restoration is for improving chewing efficiency and for Improving esthetic before final Implant retained restoration.

Pre-Op



Post-Op

Maxilla Treatment



P.2-1

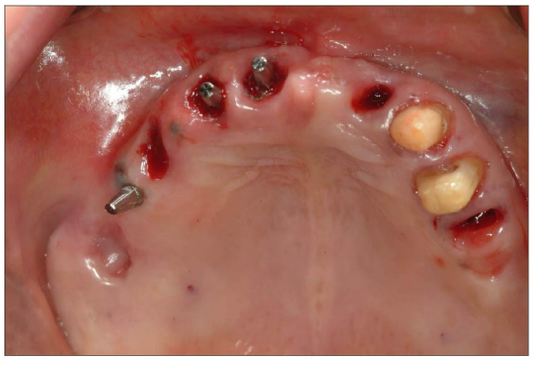
Pre-op panoramic view.

P.2-2

Placement of 8 Implants in maxilla was planned due to poor prognosis of existing teeth.

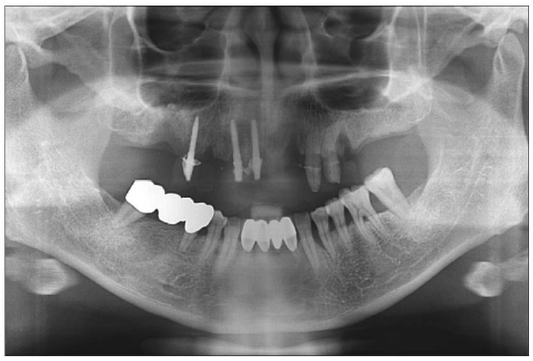
P.2-3

Pre-op clinical view, maxilla.



P.2-4

Extraction of poor prognosis teeth
and ProTem / Secure Implants placement
#12,13 were saved for retaining provisional restoration.



P.2-5

Post-op panoramic view.

P.2-6

Fixed provisional restoration.

P.2-7

Fixed provisional restoration.

ProTem / Secure 3

Dr. Seung Il Um

Case | Fabrication of fixed provisional restoration using ProTem / Secure Implants.

Patient | M / 20's

Treatment Duration | 3 months

Area | #28

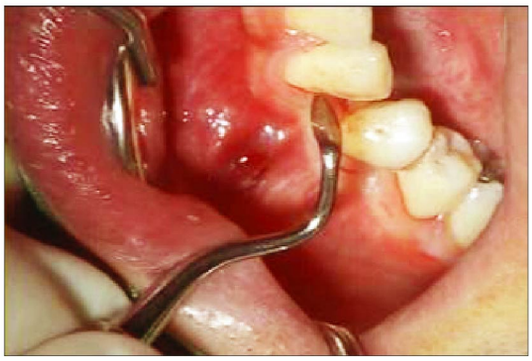
Product | DIO ProTem / Secure Implant (2.0x12mm, 4mm cuff)

Treatment Plan | Placement of DIO ProTem / Secure Implant instead of regular diameter Implant

Overall Outcome | ProTem / Secure Implant shows less fracture which is observed in temporary Implant often, and it could be used in premolar area as a final Implant.
Fixed provisional restoration is for improving chewing efficiency and for improving esthetic before major Implants retained restoration.

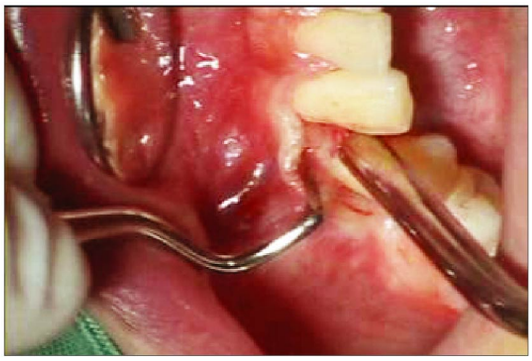
Post-Op

Mandible treatment



P.3-1

#28 missing area.



P.3-2

Bone was exposed by raising the flap.

P.3-3

Drilling.

P.3-4

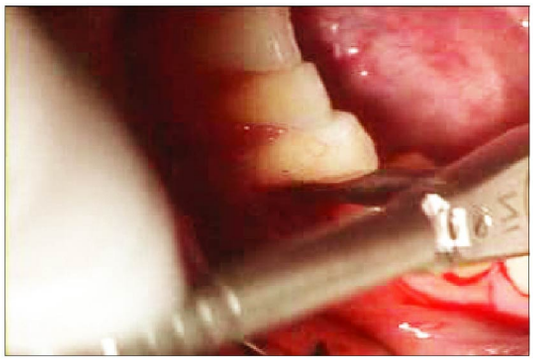
Implant placement at 15rpm.

P.3-5

Implant stopped at the handpiece torque.

P.3-6

Remaining Implant body was installed by hand ratchet.



P.3-7

Hand ratchet is installing Implant.

P.3-8

Installation completed.

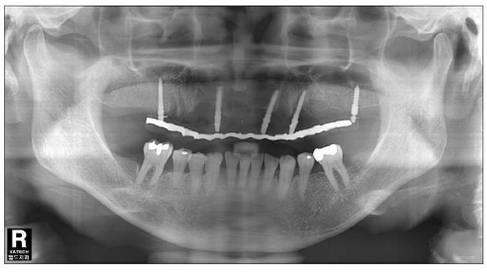
ProTem / Secure 4

Dr. Seung Il Um

Case	Fabrication of fixed provisional restoration using ProTem / Secure Implants.
Patient	F / late 50's
Treatment Duration	In process
Area	Whole maxilla
Product	DIO ProTem / Secure Implant
Treatment Plan	Fabrication of DIO ProTem / Secure Implant retaining fixed provisional restoration due to poor prognosis of abutment teeth in pre-existing FPD
Overall Outcome	Patient shows chewing insufficiency. ProTem / Secure Implants were placed to retain fixed provisional restoration. Fixed provisional restoration is for improving chewing efficiency and for improving esthetic before major implants retained restoration.

Pre-Op

Post-Op



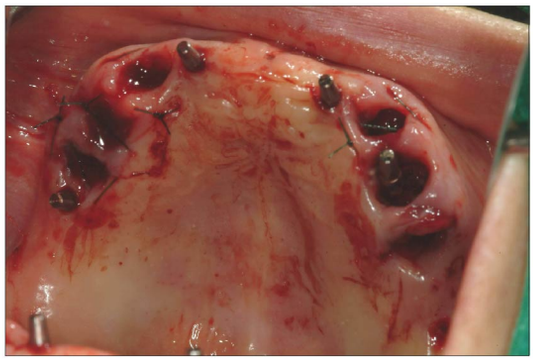
Maxilla Treatment

P.4-1

Pre-op panoramic view.

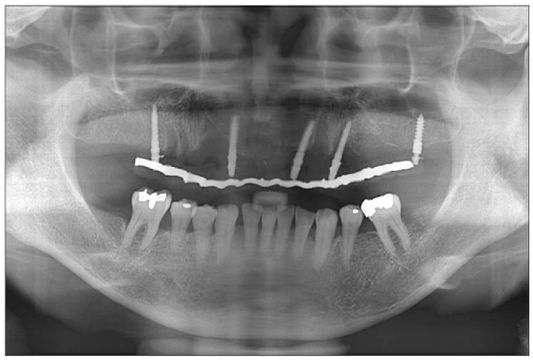
P.4-2

Abutments for FPD have poor prognosis.
Extraction and Implant restoration was planned.



P.4-3

Extraction of the teeth and placement of
2.5mm, 3.0mm temporary Implants.



P.4-4 P.4-5

Completed fixed provisional restoration
at the same day of extraction.

ProTem / Secure 5

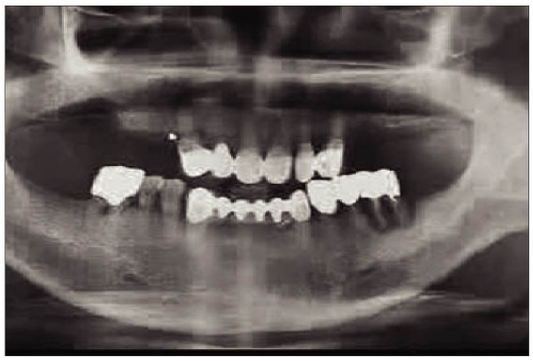
Dr. Seung Il Um

Case	Fabrication of fixed provisional restoration using ProTem / Secure Implants.
Patient	M / late 60's
Treatment Duration	In process
Area	Whole maxilla
Product	DIO ProTem / Secure Implant (2.5x12mm, 2mm cuff)
Treatment Plan	Extraction of remaining teeth. DIO ProTem Implant placement. Fabrication of fixed provisional restoration retained by ProTem / SecureImplants in maxillary anterior area.
Overall Outcome	Temporary Implant supported restoration reduced the stress on major Implant during healing period. Pre-op panoramic view and post-op clinical view.

Pre-Op

Post-Op

Maxilla Treatment

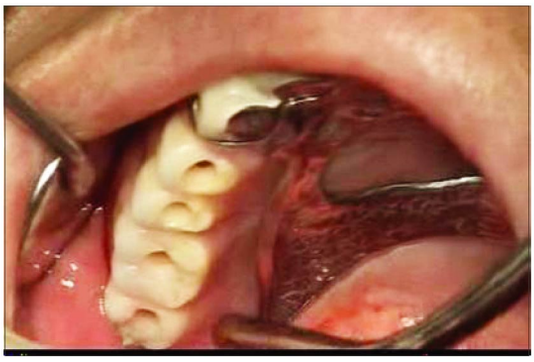


P.5-1

Pre-op panoramic view.

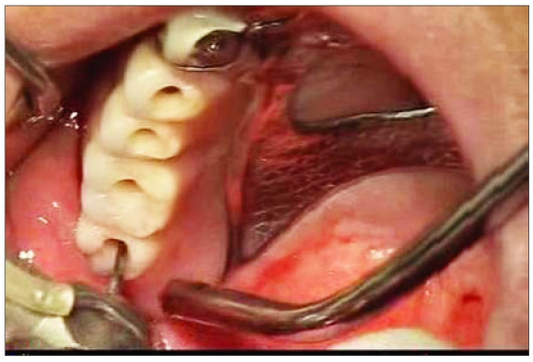
P.5-2

Pre-op clinical view.



P.5-3

Existing RPD was used as surgical guide.
Holes were made in occlusal surface
of denture teeth.

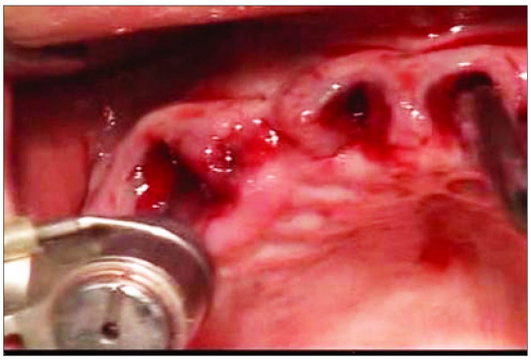


P.5-4

Drilling through the holes.

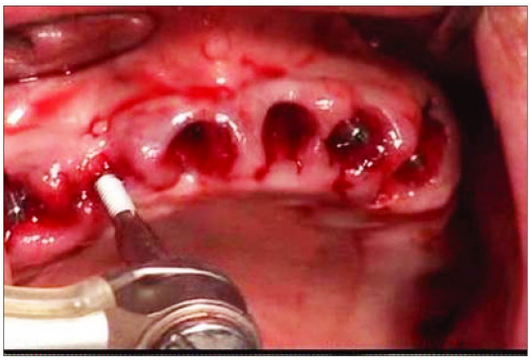
P.5-5

Extraction of maxillary anterior teeth and Erbium laser was used for infection control of socket.



P.5-6

Drilling for ProTem / Secure Implant placement.



P.5-7

Installation of ProTem / Secure Implant (2.5x12mm)

P.5-8

Installation completed.

P.5-9

Fixed provisional restoration retained by ProTem / Secure Implants.

ProTem / Secure 6

Dr. Seung Il Um

증례 | Fabrication of fixed provisional restoration using ProTem / Secure Implants in edentulous.

Patient | F / Early 60's

Treatment Duration | 3 months

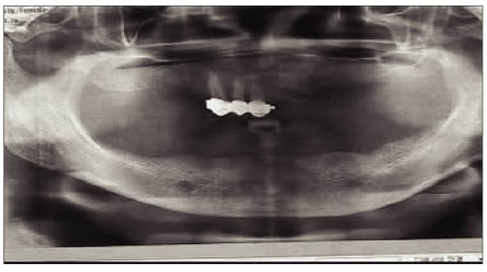
Area | Edentulous mandible

Product | DIO ProTem / Secure Implant (2.5x12mm, 2mm cuff), (2.0x12mm, 4mm cuff)

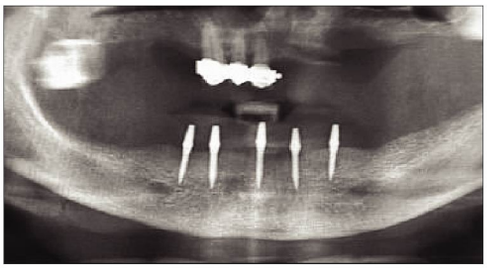
Treatment Plan | The patient was wearing the complete denture but there was lack of retention and support.
The patient wanted fixed restoration.

Overall Outcome | ProTem / Secure Implants were placed to retain fixed provisional restoration.
Fixed provisional restoration is for improving chewing efficiency and for improving esthetic before major Implants retained restoration.

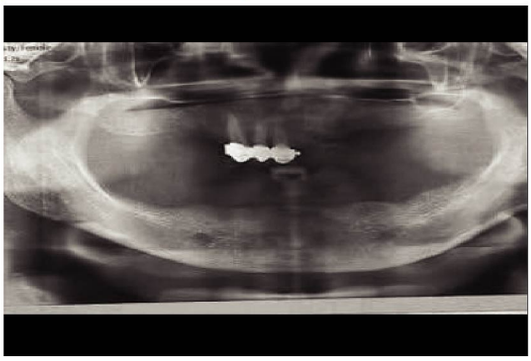
Pre-Op



Post-Op



Maxilla Treatment

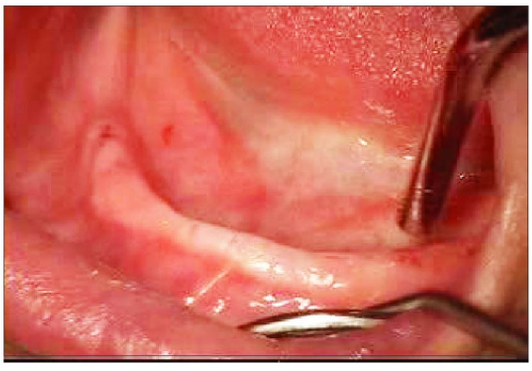


P.6-1

Pre-op panoramic view.

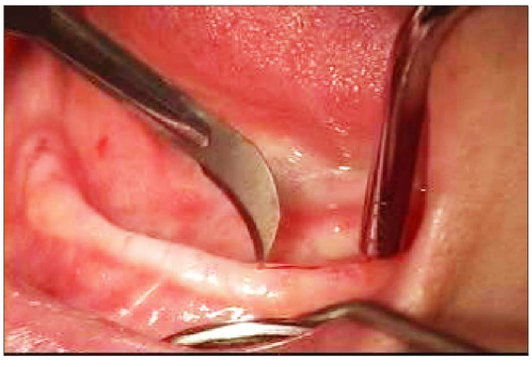
P.6-2

Provisional restoration was used for guiding Implant placement site.



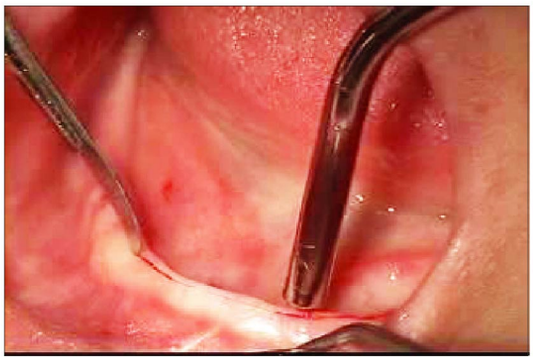
P.6-3

Pre-op intra-oral view.



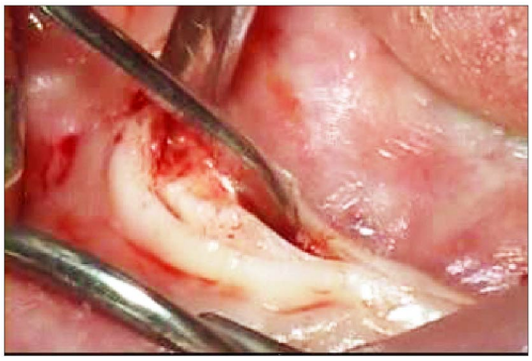
P.6-4

#12 blade for incision.



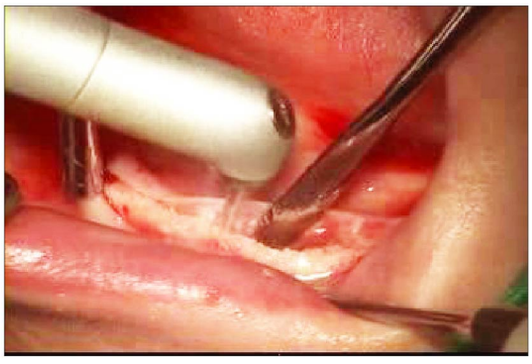
P.6-5

Flap was raised.



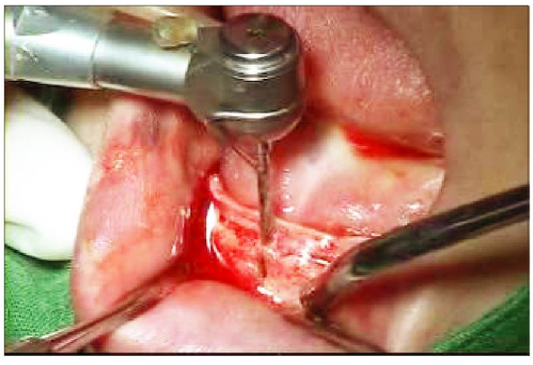
P.6-6

Bone was exposed.



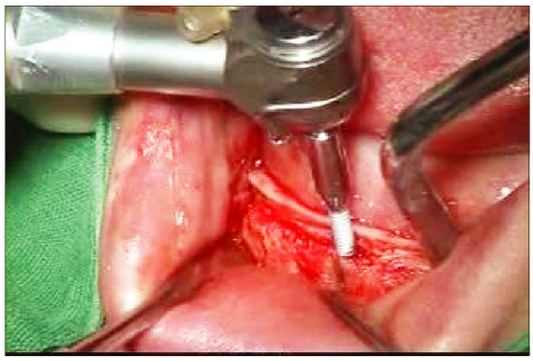
P.6-7

Sharp bony area was flattened by Erbium laser.



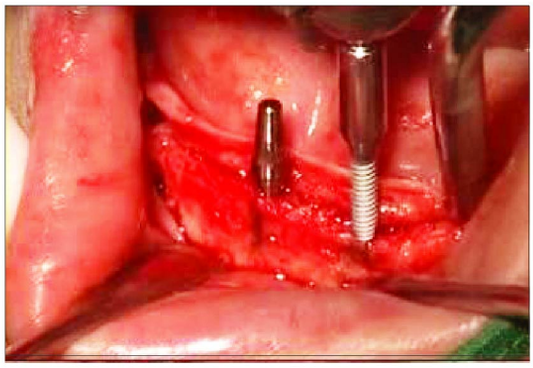
P.6-8

Initial drilling.



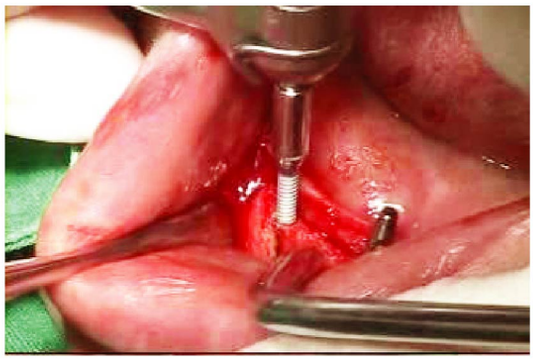
P.6-9

ProTem / Secure Implant placement.



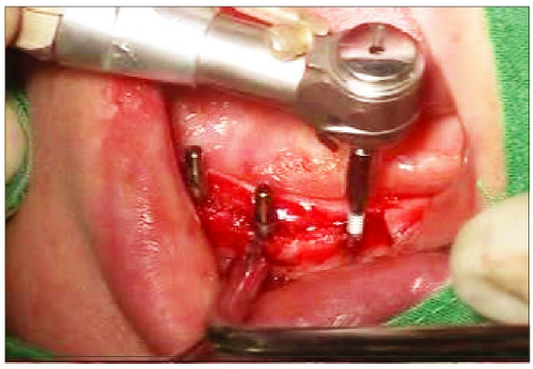
P.6-10

ProTem / Secure Implant placement.



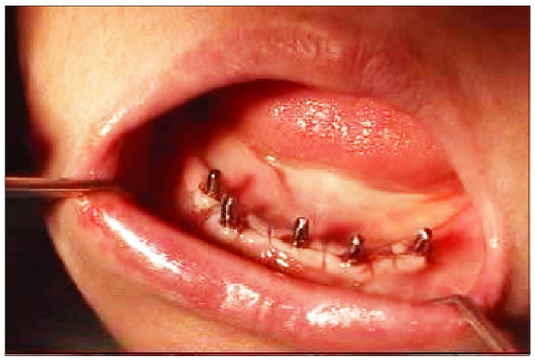
P.6-11

ProTem / Secure Implant placement.



P.6-12

ProTem / Secure Implant placement.

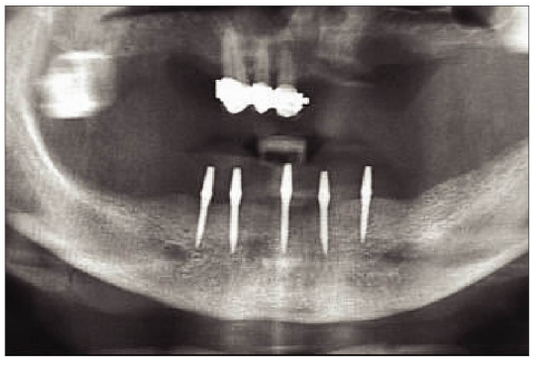


P.6-13

Implant placement completed.

P.6-14

Completed fixed Implant provisional restoration.



P.6-15

Post-op panoramic view.

ProTem / Secure 7

Dr. Seung Il Um

Case | Ball type ProTem / Secure Implant placement.

Patient | F / Early 80's

Treatment Duration | 6 months

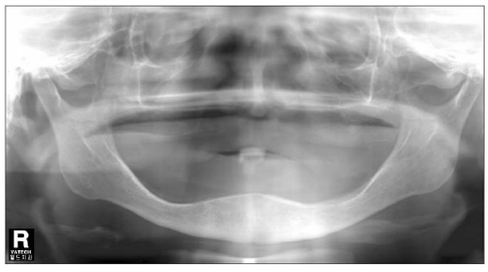
Area | Edentulous maxilla and mandible

Product | DIO ProTem / Secure Implant
(2.0x12mm, 2mm cuff), (2.0x12mm, 4mm cuff)
(2.5x12mm, 2mm cuff), (2.5x12mm, 4mm cuff)

Treatment Plan | Existing maxillary and mandibular complete dentures showed lack of retention and support. DIO ProTem / Secure Implant retained and supported fixed provisional restoration was planned to improve retention and support.

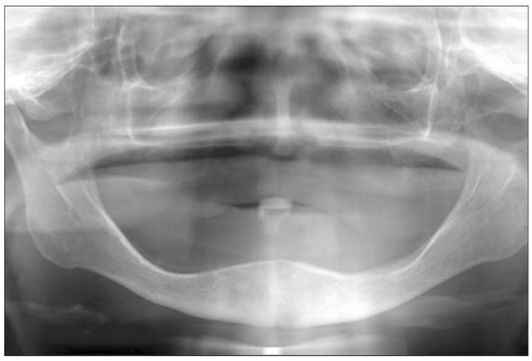
Overall Outcome | Compared to regular diameter Implant retained overdenture, mini-implant retained overdenture could be made for patient having narrow bone width. Pre-op and post-op panoramic view.

Pre-Op



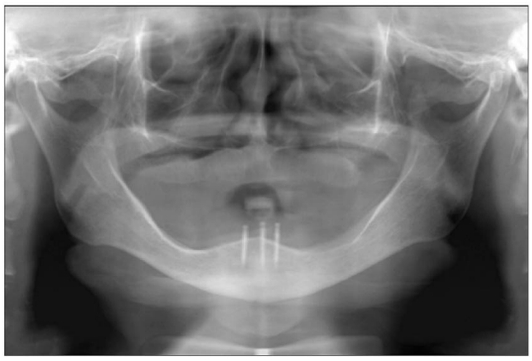
Post-Op

Mandible treatment | Maxilla Treatment



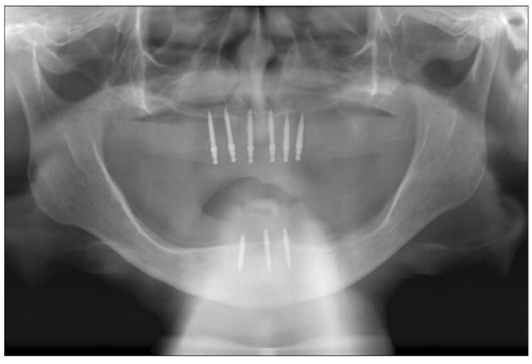
P.7-1

Pre-op panoramic view.



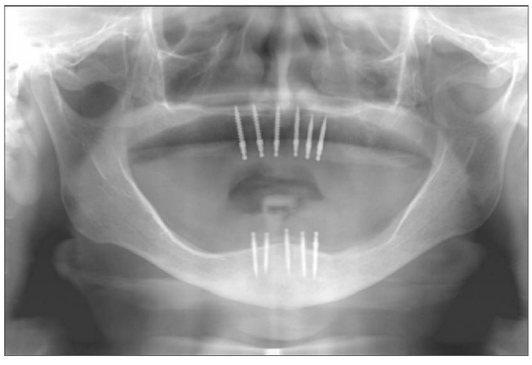
P.7-2

Installation of ball type ProTem / Secure Implant in mandible.



P.7-3

Installation of ball type ProTem / Secure Implant in maxilla.



P.7-4

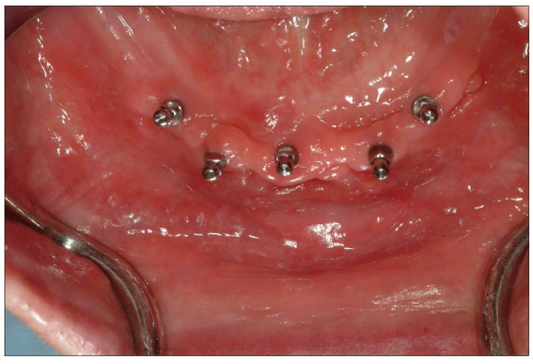
Additional ProTem / Secure Implant placement in mandible.

P.7-5

Installation completed in maxilla and mandible.

P.7-6

Intra-oral clinical view 3 months after placement.



P.7-7

Intra-oral clinical view 3 months after placement.

P.7-8

O-ring attachment.

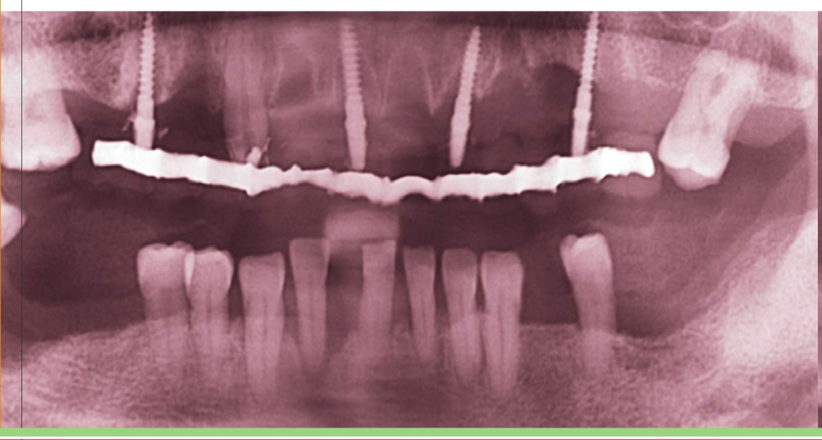
P.7-9

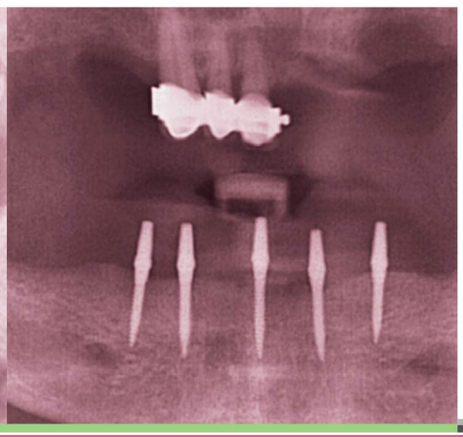
O-ring attachment.

P.7-10

Patient facial view.

Memo





DIO Clinical Cases

BioTite-H / SM / ProTem / Secure

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