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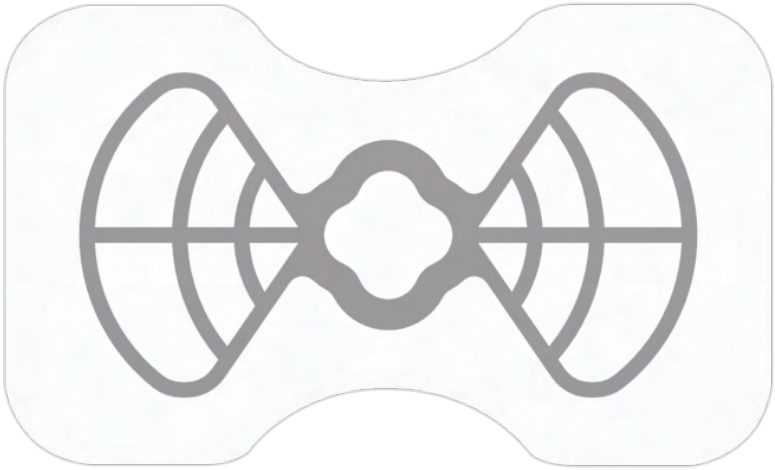
The Pioneers in Dental Implant and E.rhBMP-2

COWELL® InnoGenic™

Wifi-Mesh

Wifi-shaped Titanium reinforced PTFE Membrane



Looking for results?

ID Wifi_Mesh

Password GBR_Master

Connect to Wifi, be a GBR Master

LOGIN

REGISTER

COWELL® InnoGenic™

Wifi-Mesh

Wifi-shaped Titanium reinforced PTFE Membrane

Cowellmedi Co.,Ltd
Floor 6, Blue Fin Tower, 42, Seochojungang-ro,Seocho-gu, Seoul, Korea
Tel. **+82-2-3453-5085** Fax. +82-2-3453-5086 E-mail. cib@cowellmedi.com

Cowellmedi USA INC
8507 N. 51st Avenue Glendale, Arizona 85032
Tel. **1-623-939-1344** Fax. 1-623-939-1472

Cowell R&D Institute
48, Hakgam-daero 221beon-gil, Sasang-gu, Busan, 46986, Korea
Tel. **+82-51-314-2028** Fax. +82-51-314-2026

SCAN ME

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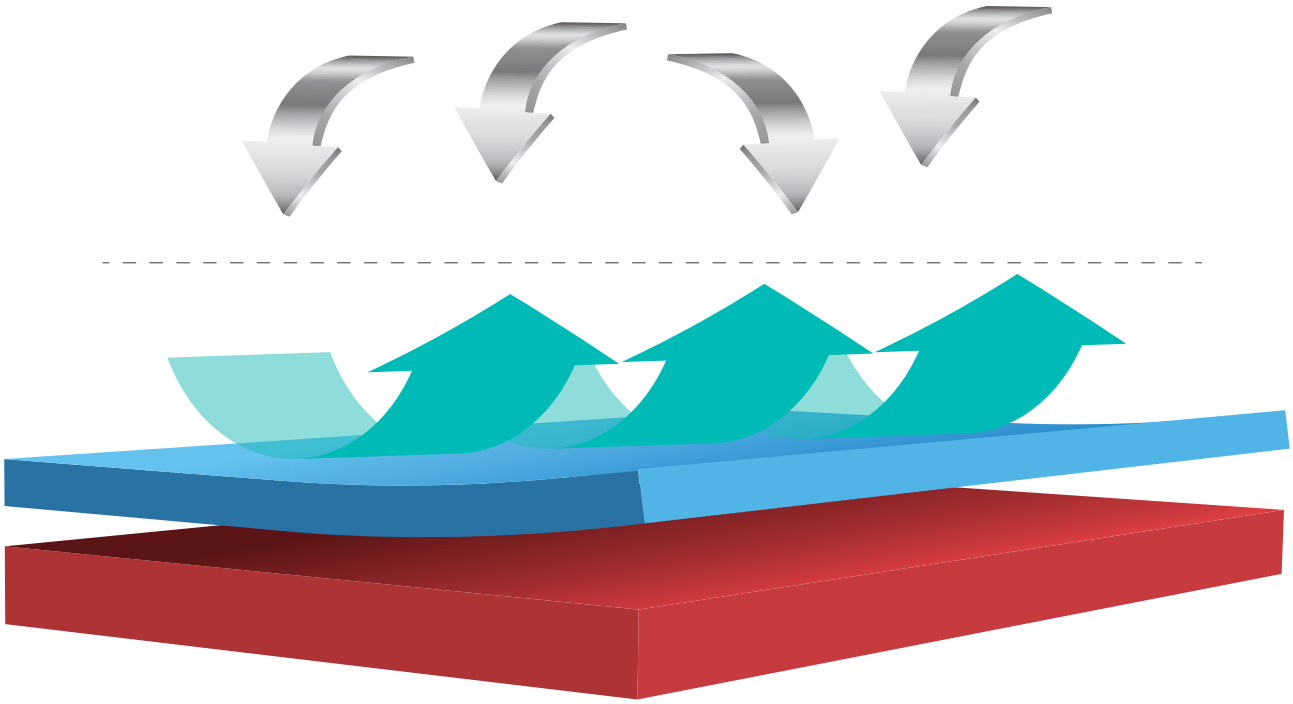
Concept of Barrier Membrane

Which role does barrier membrane play in GBR ?



: Physical inhibition of fibrous connective tissue without bone formation capability (gingival epithelia, gingival connective tissue cells), preventing it from penetrating bone defect.

· Fibrous connective tissue is prevented from invading into the bone defect, thereby obtaining sufficient amount of bone formation.

· The penetration of upper gingiva tissue of the bone defect is prevented, so the proliferation of cells derived from the bone tissue in the lower part promotes bone formation.

· Barrier membrane protects the blood clots filling the bone defect and blocks the external force from the upper soft tissue to fix the wound to promote bone regeneration.

Checklist when choosing barrier membrane

- Tissue adhesion: the membrane should be connected to tissue and not move.
- Cell barrier properties: the membrane allows only osteoblast to proliferate.
- Handling: Easy to handle and cut out.
- Space formation: the membrane must maintain space for bone formation.
- Tissue friendly: No inflammatory response.
- Economically feasible: Price should be affordable to use.

Non-Resorbable VS Resorbable Barrier Membrane in general

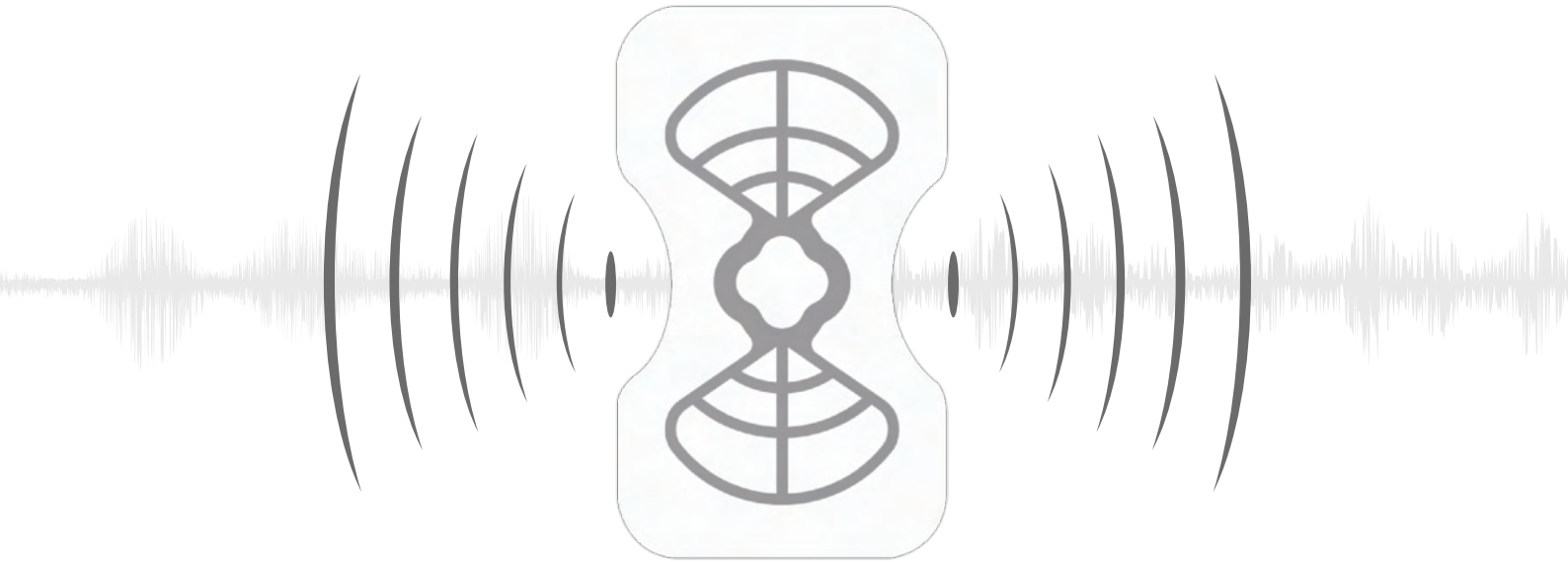
	Non-Resorbable	Resorbable
Pros	· Highly effective osteoconduction · Excellent capacity of space securement · Clinical predictability · Simple application to vertical augmentation · Possible to set effect continuance time · Stable healing of blood clots	· No 2nd surgery required · Osteoinductive (but very insignificant)
Cons	· Hard to observe underlying tissue healing · Hard to remove & 2nd Op. required · Very costly	· Low capacity to secure space · Difficult to precisely remove non completely resorbed membrane caused by exposure · Impossible to observe under-tissue healing · Unpredictable resorption time · Insufficient to use for GBR

Development Background

A barrier membrane that maximizes advantages of non-resorbable & resorbable membrane and minimizes disadvantages !

1. For all GBR required cases with a small amount of residual bone, which requires a specific shape.
2. Prevention of marginal bone resorption which is the most important in implant treatment by maintaining vertical and horizontal volume of bone regeneration site of alveolar bone ridge.
3. Prevention of infection from bacterial adhesion even at early exposure due to non-porous structure.
4. Simple removal method and thin thickness make second surgery easy and very convenient for patients and clinicians.
5. Almost transparent material provides very much predictable solution and is easy to observe underlying tissue.
6. Extremely cost-effective.

Why is it called "**Wifi-Mesh**"?

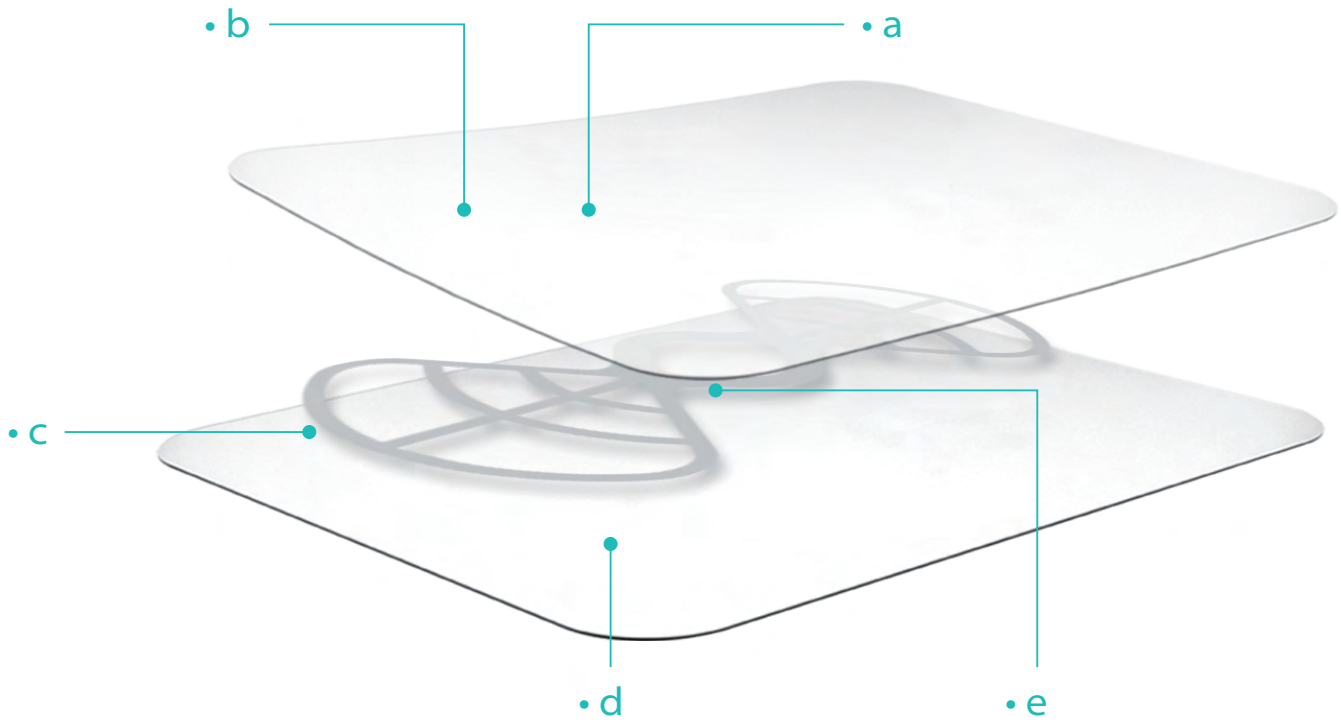


In order to find the most effective shape and favorable materials of the barrier membrane for GBR, many types of materials and their shapes had been tested.

As a result, the Wifi-shaped titanium reinforced PTFE membrane showed the optimal result in inducing osteoconductive bone surface regeneration by communicating with adjacent bone stem cells.

This phenomenon is similar to Wifi with mesh-like communication network that spreads widely into empty space and the shape of the titanium of the product looks like the Wifi symbol. In the light of the phenomenon and appearance, the product was named "**Wifi-Mesh**".

Features



a. High predictability of results: the transparent PTFE membrane allows the healing process of the underlying tissue to be identified, making it highly predictable and easy to determine removal time.

b. Prevention of infection: the non-porous and smooth surface prevents bacterial penetration and even it allows users to perform open sheet membrane technique.

c. Superb shape retentivity: the reinforced titanium frame is easy to bed shaped and maintain superb shape retentivity.

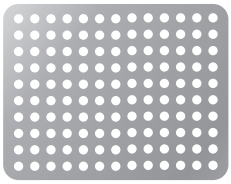
d. Healing Period Control: the Wifi-Mesh is made of 100% non-resorbable material so that users can control the healing period.

e. Easy to remove and fix: the hole in the centre allows easy removal and fixation with such bone screws and abutments as BOSS® System.

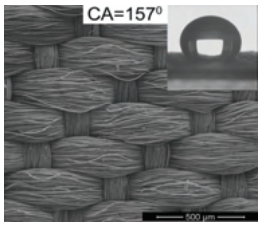
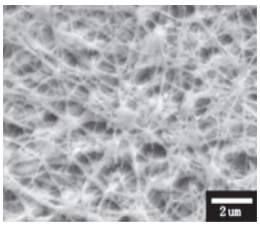
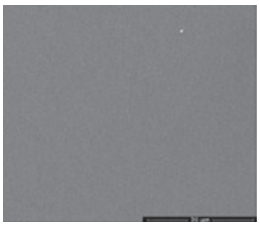
f. Various shapes and sizes: available in a variety of shapes and sizes for optimal application (refer to the page 7).

Quick & simple customization	Outstanding space maintenance	The optimal solution for GBR
Anybody can easily cut in the desired shape	Bone graft materials & space are safely protected & secured	Stable healing of blood clots using clinically proven materials

Comparison to different types of Non-resorbable membranes

classification	PTFE-Mesh	Ti-Mesh	**Wifi-Mesh**
Image			
Cutting Instrument	**Dean scissor**	SS crown scissor	**Dean scissor**
Memory	High	**Very low**	**Very low**
Space Maintenance	Weak	**Strong**	**Strong**
Action on exposure	**No need to remove**	Immediate removal required	**No need to remove**
Application of open membrane technique	**Possible**	Impossible	**Possible**
Technical experience	**Not much required**	Highly required	**Not much required**

Comparison to similar types of Non-resorbable membranes

Classification	Product A	Product B	**InnoGenic™ Wifi-Mesh**
SEM Photograph			
Ultrastructure	Fiber	Filter	Sheet
Bacterial infection at exposure	Bacterial toxin penetration between filters at 50 μm intervals	Bacterial toxin penetration between filters at 2 μm intervals	No Bacterial toxin penetration thanks to non porous structure
Action on exposure	Instant Removal	Removal on week 3 to 4	Safe for more than 6 weeks
Block function against fiber cell	High	High	Extremely High
Shape-keeping against external force	Large Deformation	Shrinkable Deformation	No Deformation

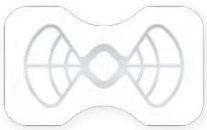
Specifications

InnoGenic™ Wifi-Mesh

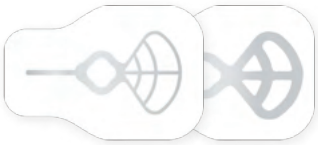
Product Code	Size	Thickness
BTP1424AA	14X24	0.25
BTP1424AB	14X24	0.25
BTP1525BB	15X25	0.25
BTP1725CA	17X25	0.25
BTP1725CA12	17X25	0.25
BTP2030AB	20X30	0.25
BTP2030AB12	20X30	0.25
BTP2530AB	25X30	0.25
BTP2530AB15	25X30	0.25
BTP3040AB	30X40	0.25
BTP3040AB15	30X40	0.25

BTP1424AA

BTP1424AB

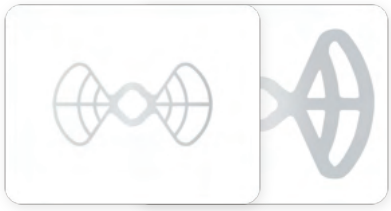


BTP1525BB

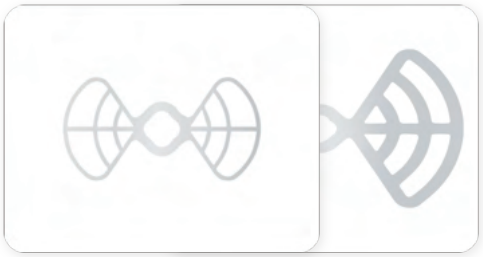


BTP1725CA / BTP1725CA12

BTP2030AB / BTP2030AB12



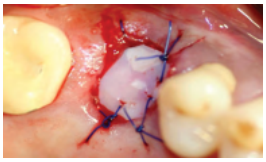
BTP2530AB / BTP2530AB15



BTP3040AB / BTP3040AB15

* Titanium material is the same

InnoGenic™ PTFE-Mesh



Product Code	Size	Thickness
TS24301	24 x 30	0.1

- **Non-resorbable**

  Made of 100% non-resorbable material for users to modulate healing period.

- **Non-porous (0.0 μm) + Open Membrane Sheet Technique**

  Prevention of infection or other possible defects caused from passage or integration of bacteria through the porosity of plaster and it even allows to application of the Open Membrane Sheet Technique.

- **Prevention of Displacement**

  Not only being sutured along with gingiva but also being fixed with components from the **InnoGenic GBR Kit** to prevent displacement of the product.

- **Close to Transparency**

  Observation of the healing of the underlying tissue through almost transparent PTFE surface allows more predictable result and helps determine removal time easier.

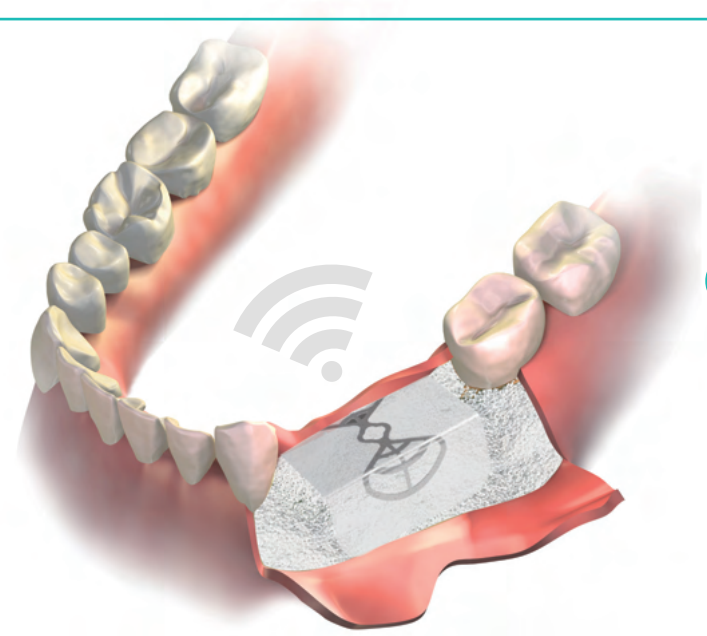
- **Easy to be Customized**

  Easy to modify the shape according to shape and dimension of the defect.

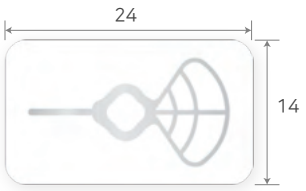
- **Easy to be Removed**

  Put a hook in the hole of the titanium frame of the InnoGenic Wifi-Mesh and in any center part of the InnoGenic PTFE-Mesh and remove.

Indications

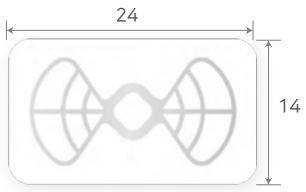


Connect to Wifi, be a GBR Master !



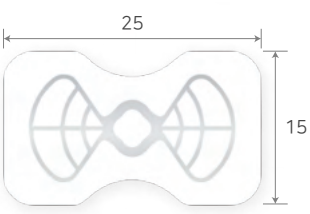
BTP1424AA

Only one wall defect of buccal or lingual bone in very narrow area



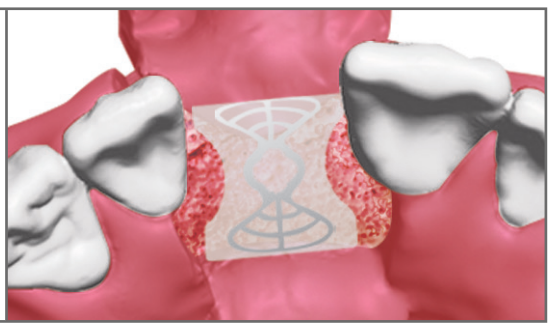
BTP1424AB

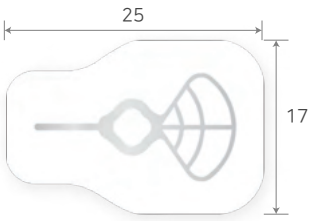
Two wall defect of buccal and lingual bone in very narrow area



BTP1525BB

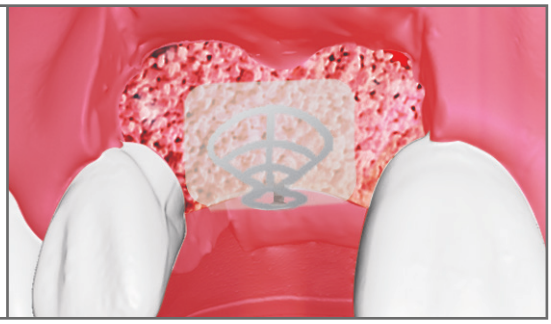
Inter-dental two wall defect of buccal and lingual bone in very narrow area





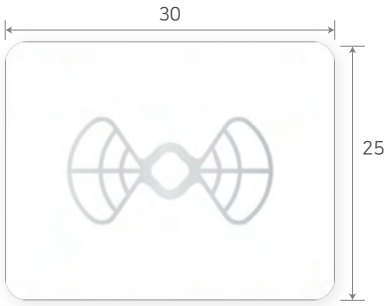
BTP1725CA / BTP1725CA12

Inter-dental two wall defect of buccal and lingual bone in narrow area



BTP2030AB / BTP2030AB12

Two wall defect of buccal and lingual bone in narrow area



BTP2530AB / BTP2530AB15

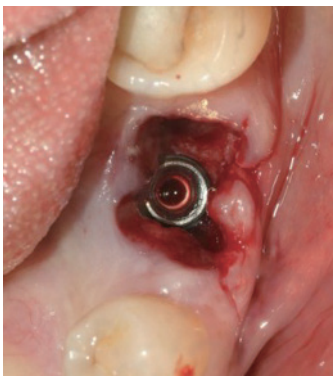
Two wall defect of buccal and lingual bone in large area

BTP3040AB / BTP3040AB15

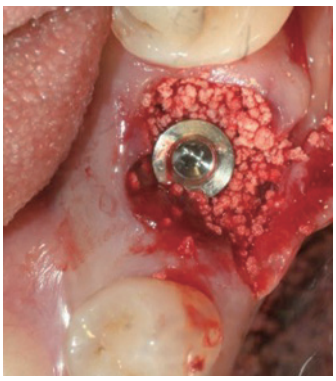
Two wall defect of buccal and lingual bone in very large area

Application using GBR Abutment
(GBR Kit - Fix Connector + Cover Cap)

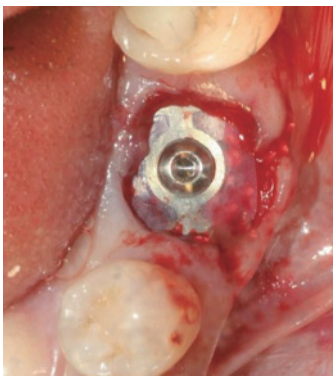
① Pre-OP



② INNO Fixture



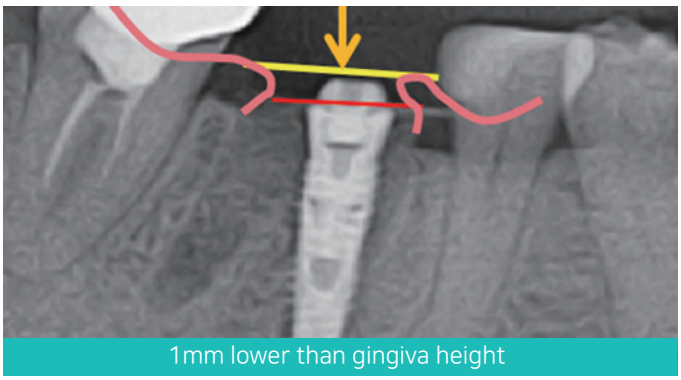
③ Fix Connector & bone graft



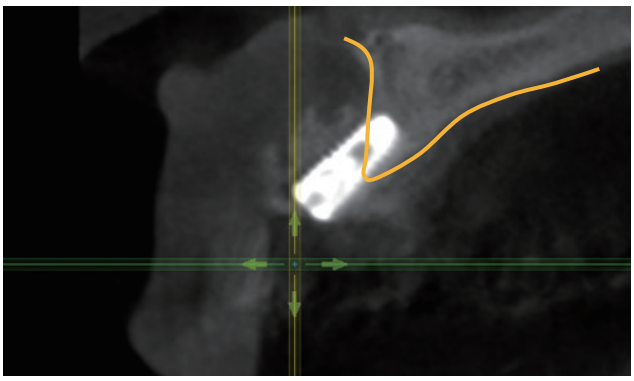
④ Fix Connector + Cover Cap & Wifi-Mesh

⑤ After 3weeks

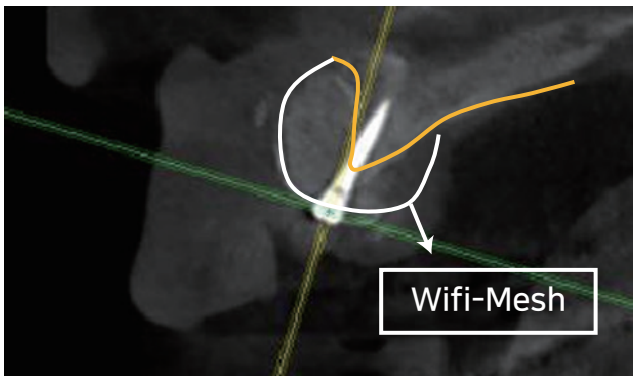
⑥ Removal of Wifi-Mesh



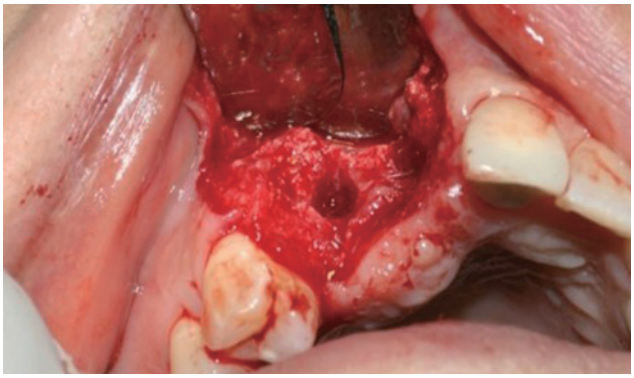
Application using GBR Screw
(GBR Kit - Tenting Screw, Tenting Cap)



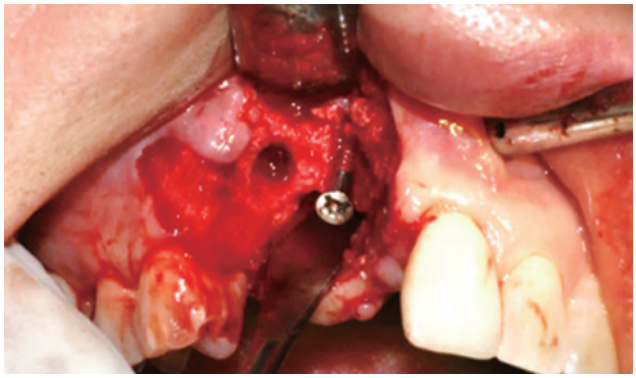
Implant initial fixation impossible
due to lack of alveolar bone



Vertical bone augmentation using the Wifi-Mesh and
Tenting Screw

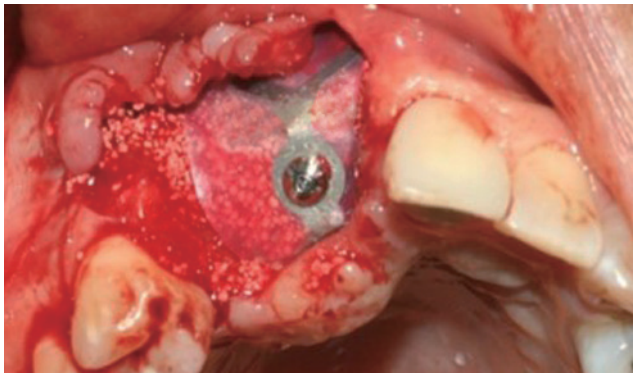


① Implants cannot be placed due to lack of alveolar bone



② Fixed to center

③ Bone graft was performed



④ Mount the Wifi-Mesh to the Screw using the Tenting Cap.

Clinical Application [Wifi-Mesh]

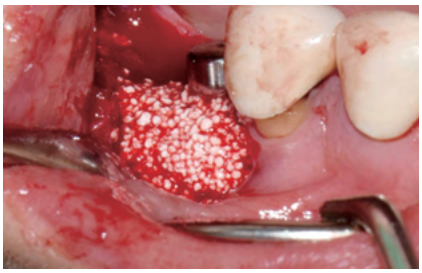
Case I

Pre-op

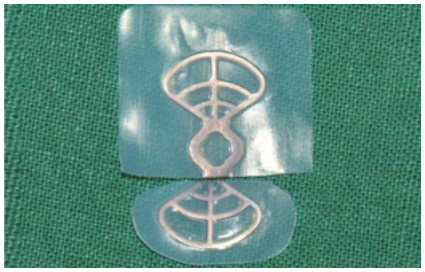
Implant placement

Implant placement

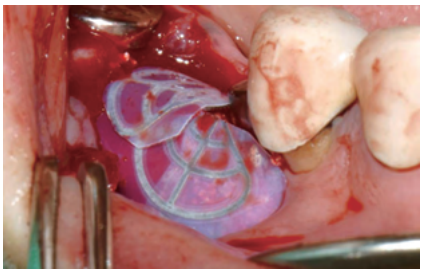
Clinical occlusal view of #45 and #46 showed severe bone defects.



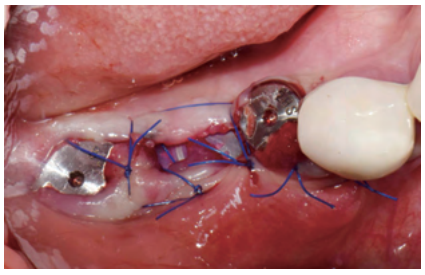
Buccal bone graft technique with Wifi-mesh of #45



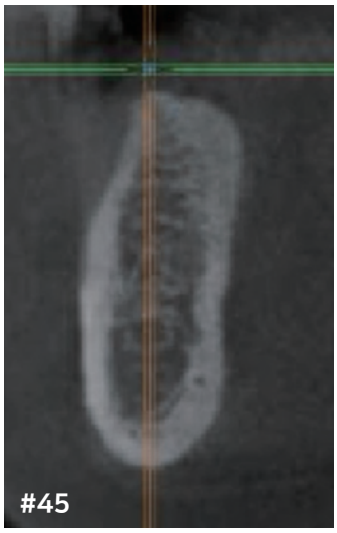
Wifi-Mesh trimming

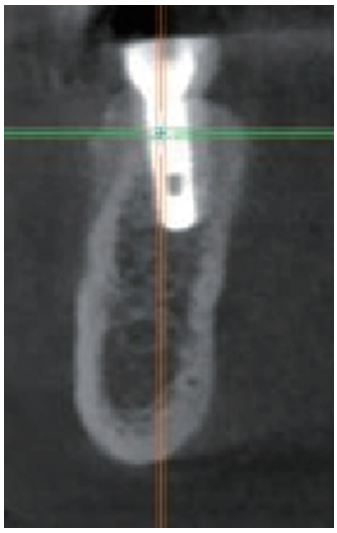


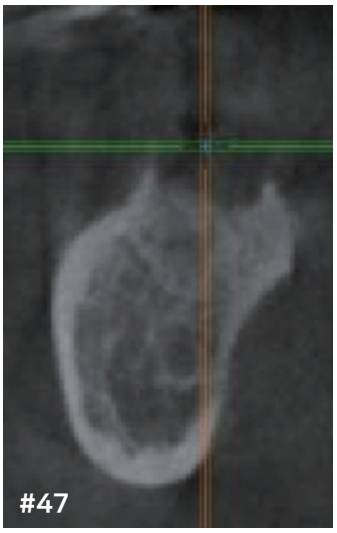
Wifi-Meshes were applied to the defect.

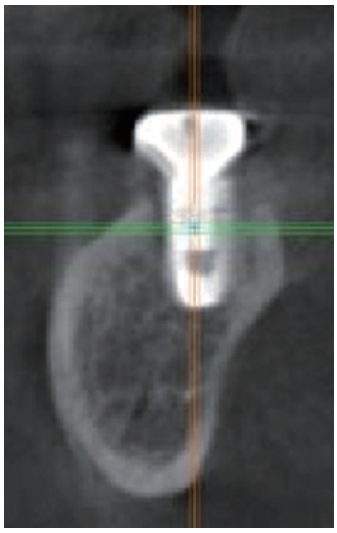


Open membrane technique in extraction socket of #46

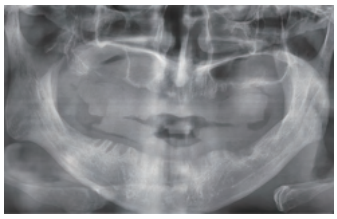




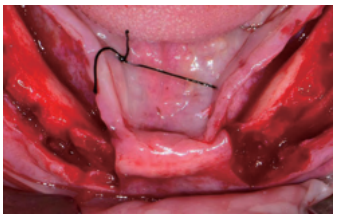


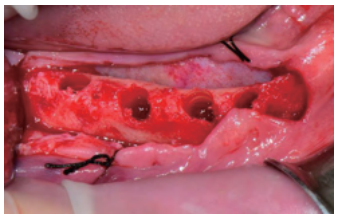


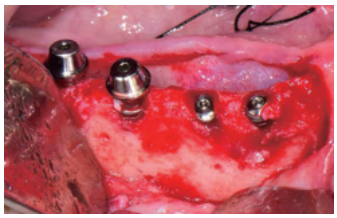
Case II

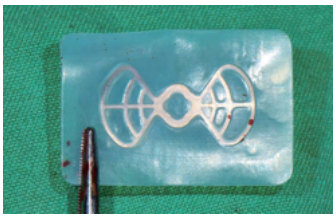

Pre-OP panorama

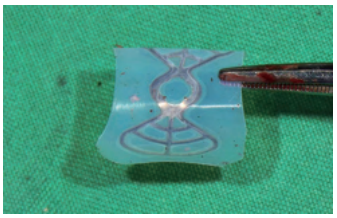

Occlusal view of the bone defect

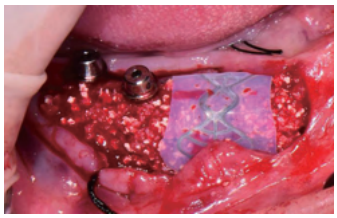

Flap reflection

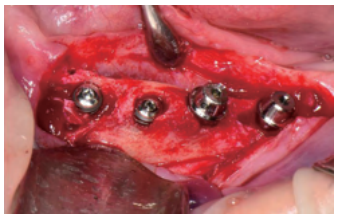

Drilling

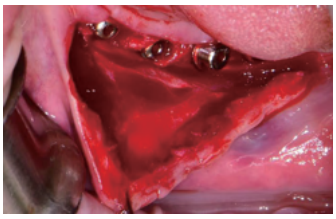

Implant placement of #43, 44, 45 & 46

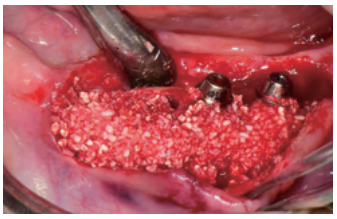

Wifi-Mesh

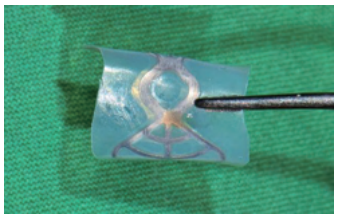

Wifi-mesh preparation*

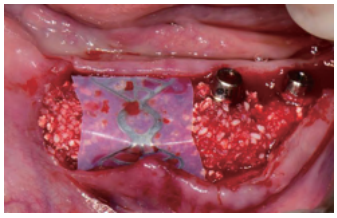

Wifi-mesh placement

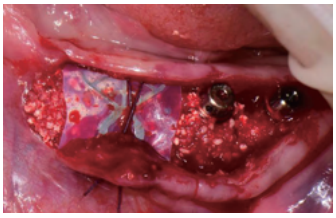

Implant placement of #33, 34, 35 & 36


Releasing incision


Bone graft


Wifi-mesh preparation

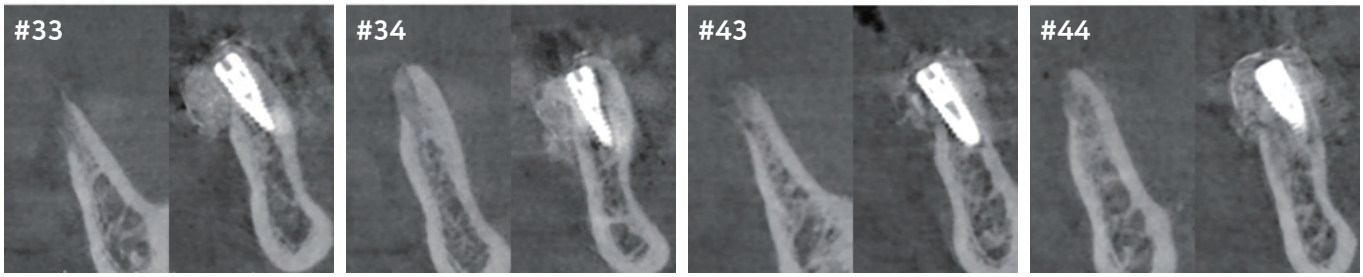

Wifi-Mesh placement


Membrane holding suture


Primary suture

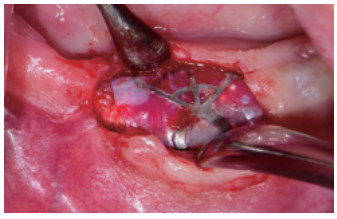

Post OP panorama

* It must be bent to form a shape, and if it is bent incompletely, it can spread inside the gingiva.

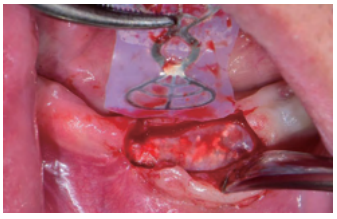


CT scan images after GBR shows significant amount of alveolar bone regeneration.

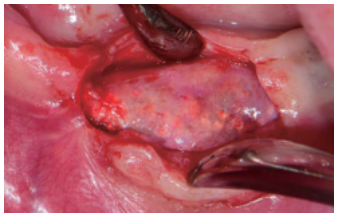
2 months after the 1st surgery



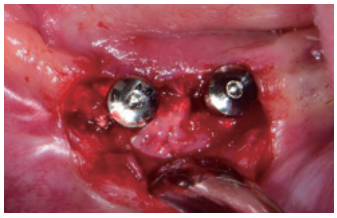
2nd surgery and Wifi-Mesh removal



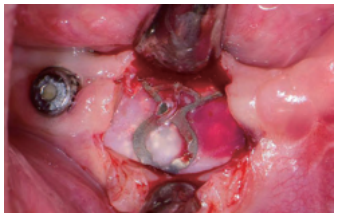
The Wifi-mesh was easily removed.



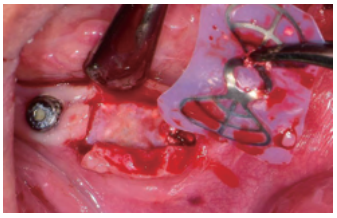
The defect area was fully filled with the new bone.



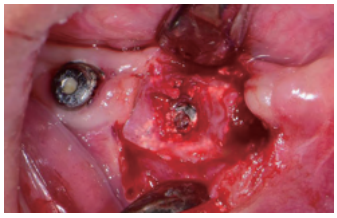
Installation of healing abutments



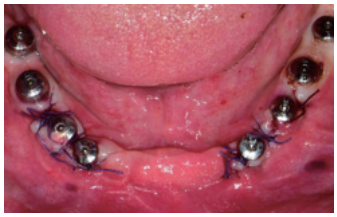
Incision of #43 and 44



Membrane removal



Both horizontal and vertical bone regeneration was noticed clinically.



Uncovering surgery of Lower jaw

2nd OP panorama

POD 3 months Temporary loading

Case III

Introduction

- This case presents minimally invasive implant placement and ridge augmentation in the esthetic area.
- The extraction, implant placement and bone grafting were performed without incision and flap elevation in order to minimize tissue damage.

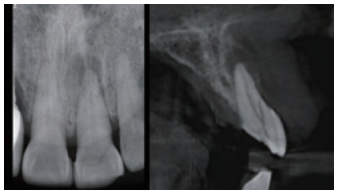
Patient information

- Patient: 70-year-old, Male
- Medical history: N/S

Diagnosis & Treatment planning

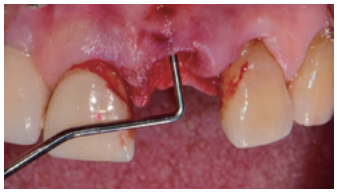
- Diagnosis
  #21 : vertical root fracture & periapical lesion

- Treatment plan:
  - #21 atraumatic extraction & cyst removal
  - Flapless Immediate implant placement
  - Flapless 3D augmentation with COWELL® BMP, Allobone & Wifi-Mesh

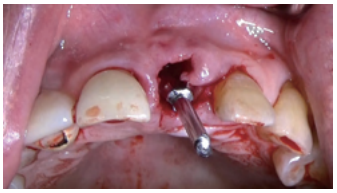


Diagnosis
#21 Vertical root fracture.


Root extraction.

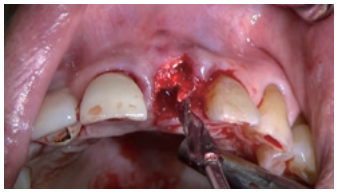

Cystic lesion removal.

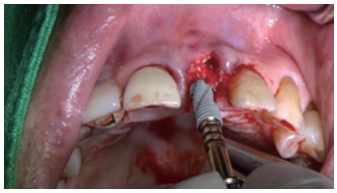

No labial plate.

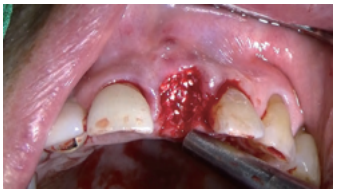

Implant Drilling.


Final drill insertion before bone graft.

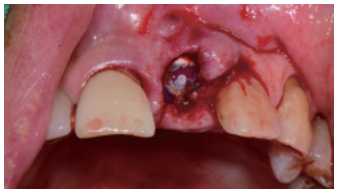

Bone graft around Implant drill.


Implant drill removal.


INNO Implant placement.


Additional bone graft.


Wifi-Mesh preparation.


Wifi-Mesh placement under periosteum.


Suture.


Maryland Temporary bridge.

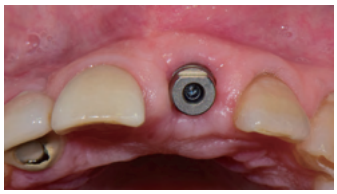

POD 7days, Stitch-out.

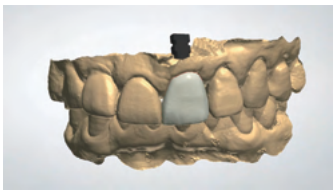

POD 2months, Uncovering surgery.


Laser incision.


Wifi-Mesh removal.

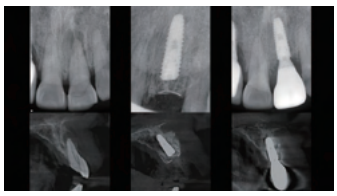

Healing Abutment.


POD 3months, Implant impression.


Implant Crown Design.


Temporary loading.

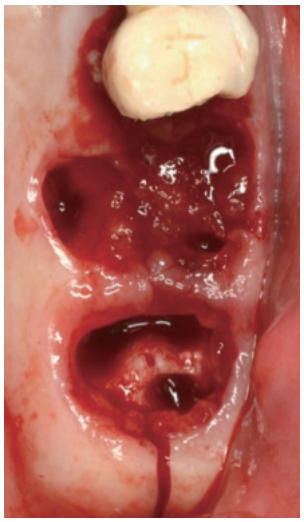
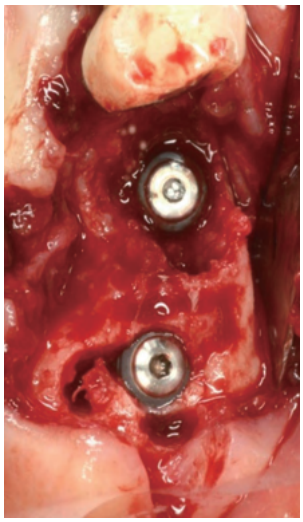
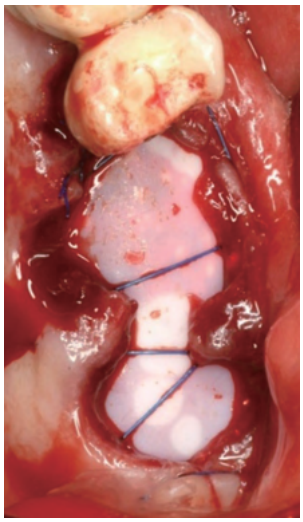

POD 4months, Final loading.


PreOP PostOP POD 4months

Clinical Application [PTFE-Mesh]

Case I

Open membrane technique and immediate implant placement in maxillary molars

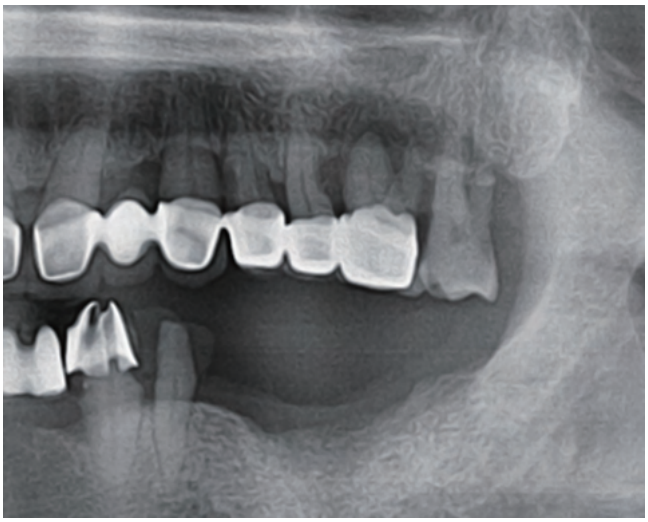
The maxillary molars were extracted.
The PTFE-Mesh was covered over the bone graft of socket preservation and implants.

3 weeks.

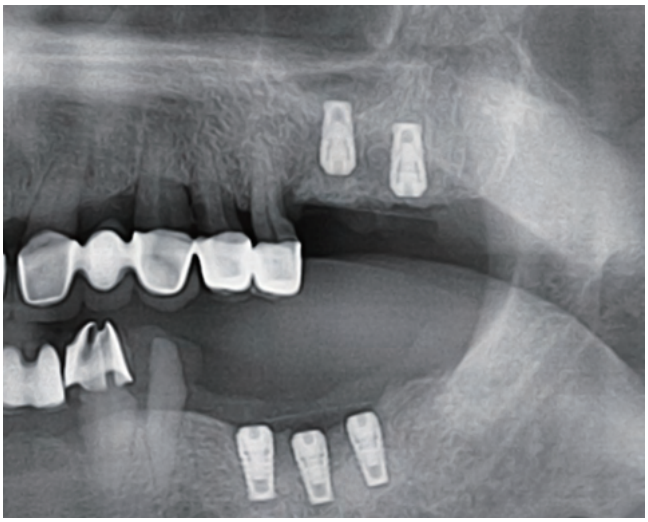
3 weeks after the graft operation, the PTFE-Mesh was removed. The new keratinized gingiva was regenerated on the bone graft particles.

4 months.

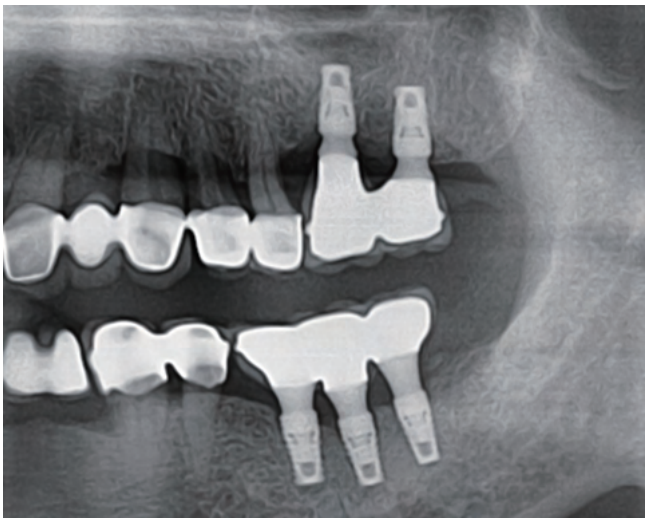
4 months after the graft operation, the keratinized gingiva was regenerated in the defect of socket.



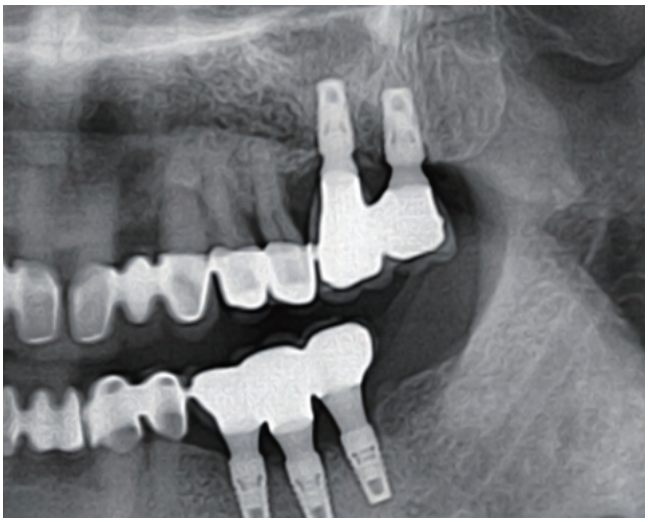
At visit.



Surgery.



6 months.

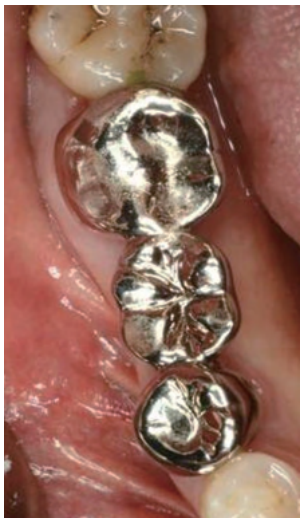


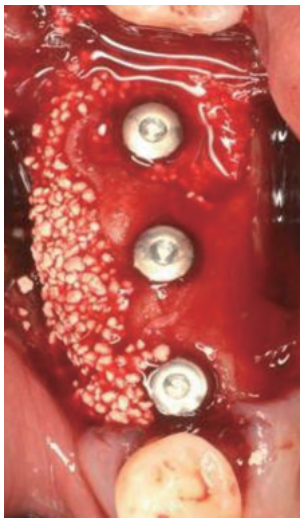
32 months.

After 6 months of implant placement, the splinted crown was placed.
There was no loss of marginal bone at the 32 month follow-up visit.
As result, the immediate implant placement and the open membrane technique with socket bone graft could make the new keratinized gingiva.

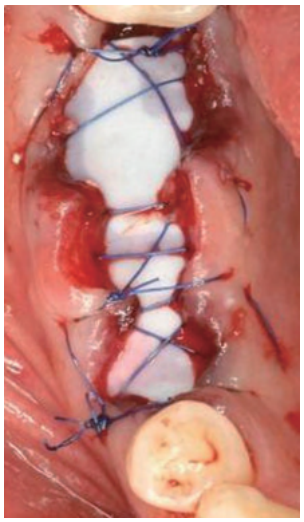
Case II

Lateral bone graft with immediate implant placement in mandibular molars

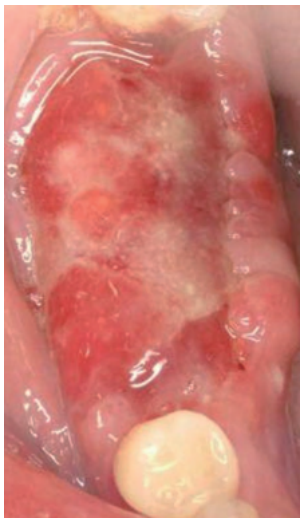




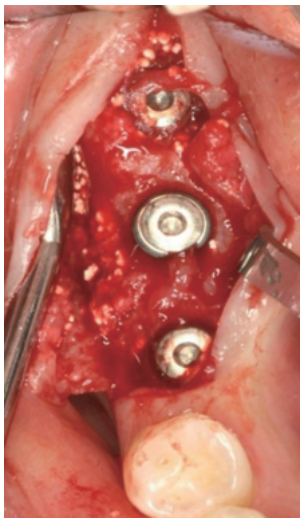
Lateral bone graft with implant placement was done in mandibular 1st molar.



The extraction sockets of 2nd molar and 2nd premolar were grafted with the open membrane technique.

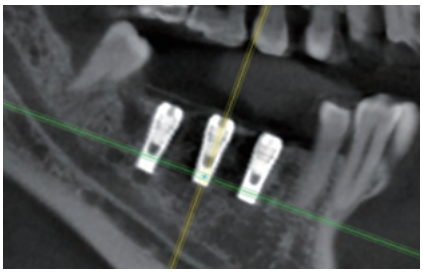


3 weeks after the graft operation, the PTFE-Mesh was removed. The new keratinized gingiva was regenerated on the bone graft particles.

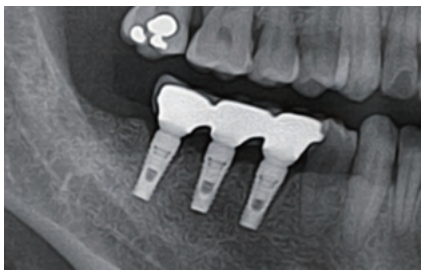


3 months after the graft operation, the keratinized gingiva was regenerated in the defect of socket.

At visit.



Lateral bone graft.



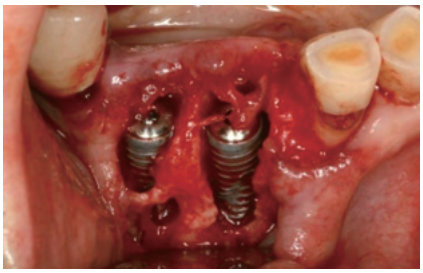
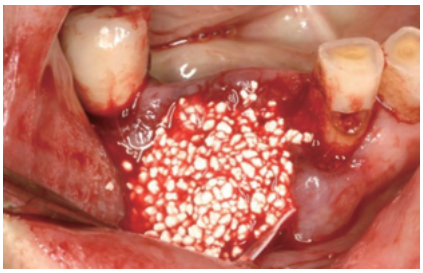
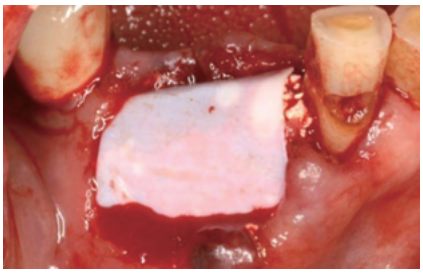
4 months.

31 months.

During healing period, the crestal bone level was decreased in the site of lateral bone graft.
From 4 months to 31 months of follow-up visit, there was no the loss of marginal bone.
As result, lateral bone graft with implant placement and open membrane technique in extraction socket could make the new keratinized gingiva.

Case III

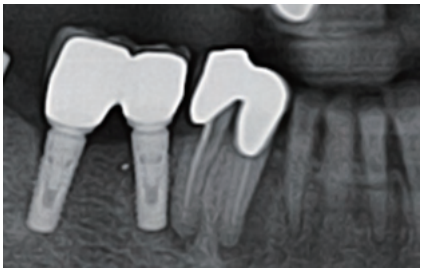
Socket preservation with immediate implant placement in mandibular premolars

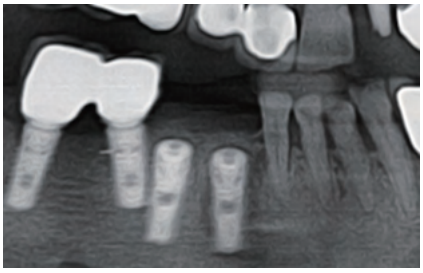
Socket bone graft with implant placement was done in the buccal wall defect of mandibular premolars. The extraction sockets of premolars were grafted with the open membrane technique.

3 weeks after the graft operation, the PTFE-Mesh was removed. The new keratinized gingiva was regenerated on the bone graft particles.

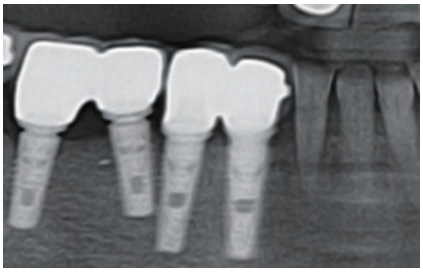

3 months after the graft operation, the keratinized gingiva was regenerated in the defect of socket, and the splinted crown was placed.



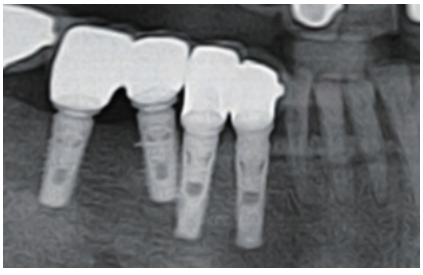
At visit.



Surgery.



3 months.



15 months.

28 months.

28 months of follow-up visit, there was no the loss of marginal bone.

As result, the open membrane technique with implant placement in he buccal wall defect of premolars could make the new keratinized gingiva.

COWELL® InnoGenic™
Wifi-Mesh

Q&A

Why should I use Wifi-Mesh in GBR?

Although PTFE and titanium are non-resorbable and require a second surgery, Some clinicians report that the d-PTFE completely blocks the penetration of food and bacteria, and thus even if it is exposed to the oral cavity, the d-PTFE membranes exert good guided tissue regeneration (GTR) effects. Wifi-Mesh is made of titanium reinforced d-PTFE. That's why you should use it.

Do the Wifi-Mesh have to be secured with screws or tacks?

The titanium frame is a grade of titanium that has little or no memory, so it may be formed to the desired shape and will remain in that shape until mechanically altered. For this reason, screws or tacks are not always necessary if stability can be obtained by simply tucking the membrane 3-5 mm subperiosteally.

How long can the membrane stay in place?

It is recommended that the membrane stay in place for 3 - 4 weeks. This provides sufficient time for the blood clot to form, graft material to consolidate, and osseous tissue to begin forming under the membrane. The membrane may be left in place longer than 6 weeks, but it is normally recommended to remove the membrane at 3 - 4 weeks to allow revascularization of the soft tissue.

Can unused portions of the titanium reinforced membrane be resterilized?

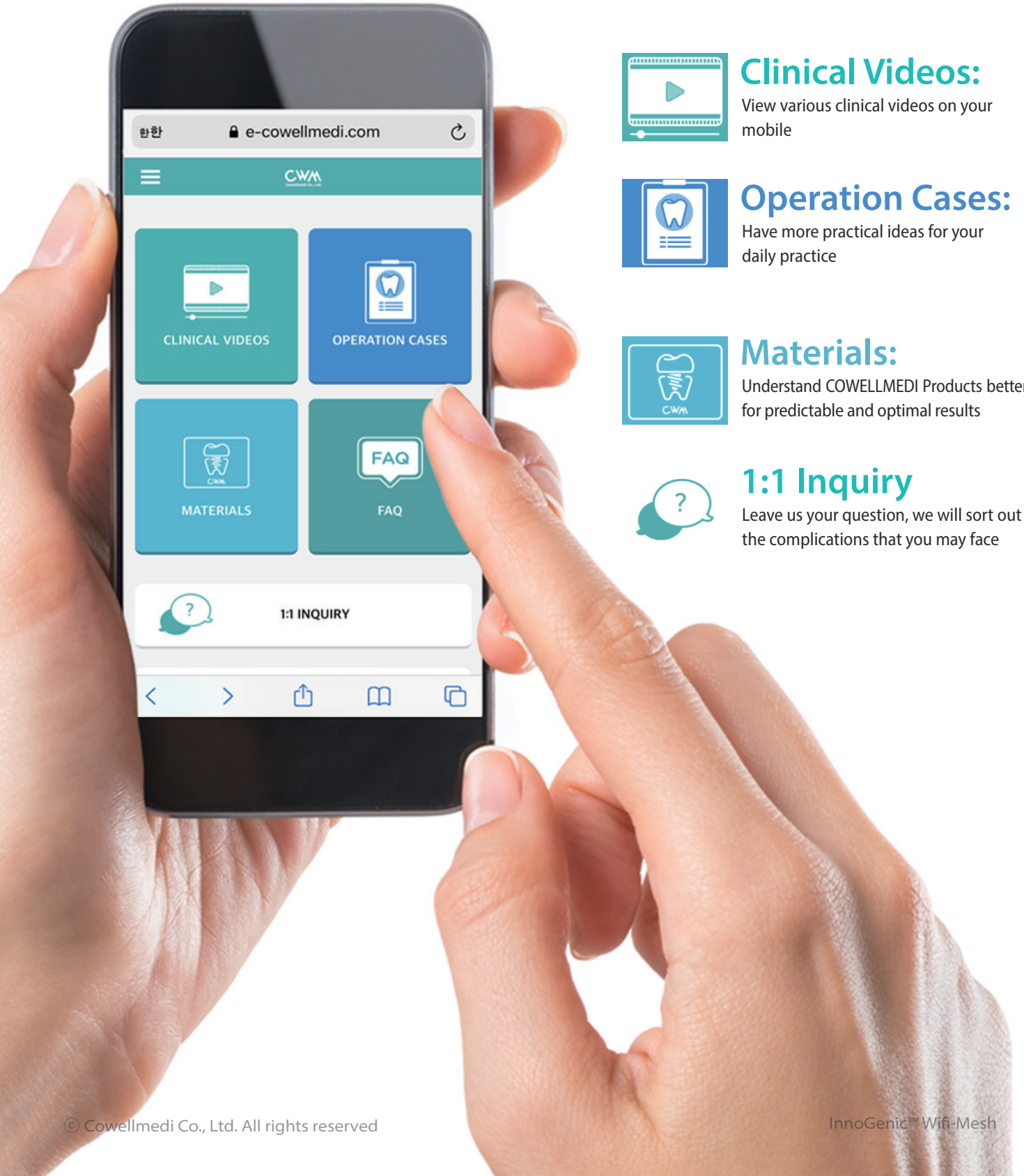
No. These membranes are single use only and may not be resterilized or reused.

What is the expiration date?

Expiration date of the product is 3 years from manufacturing.

E-COWELLMEDI

(e-cowellmedi.com)



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1:1 Inquiry

Leave us your question, we will sort out the complications that you may face