

- **Introduction:**

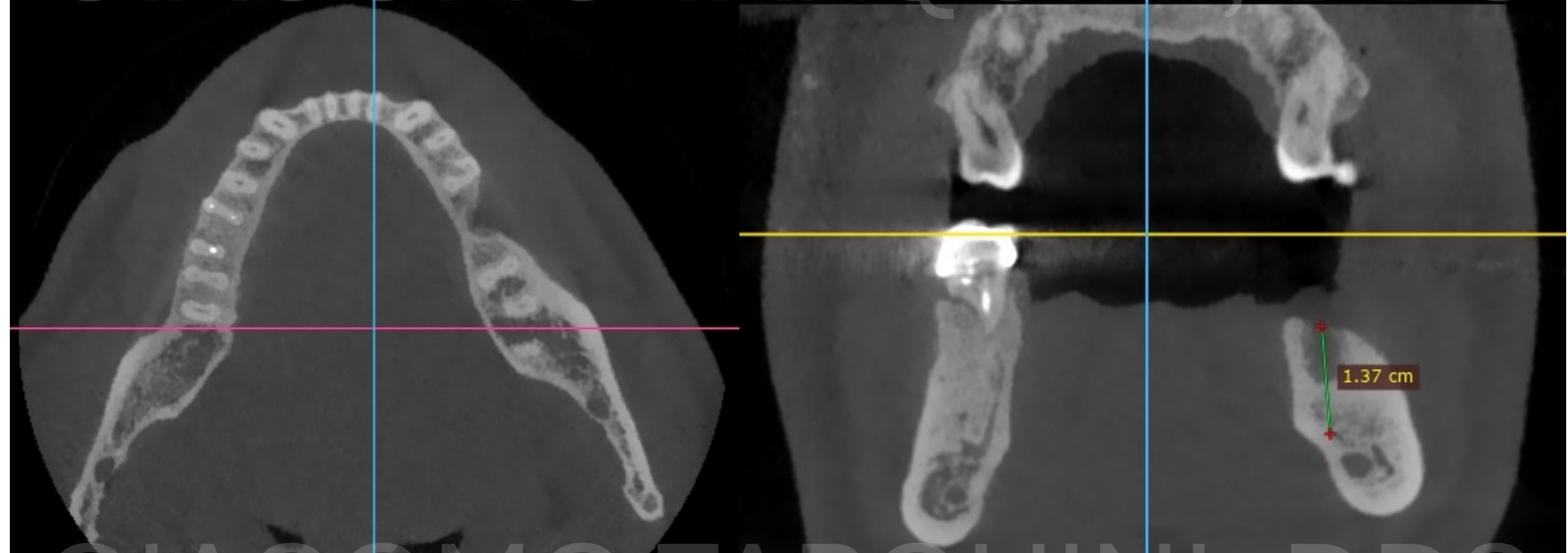
- Guided Bone Regeneration (GBR) is one of the best documented procedures to achieve that result: it entails the placement of a barrier membrane between epithelial and connective tissues on one side and implants and bone on the other side to create a protected space for the blood clot to form and organize, thus allowing bone cells coming from marrow spaces to repopulate the defect and to mature into new bone.
- In certain cases, the recourse to resorbable barrier membranes with a longer protection period may represent an ideal compromise that significantly increases the predictability of the regeneration therapy, especially in non-containing bone defects.
- Flex Cortical Sheet (FCS) is a barrier membrane made from enzyme-treated equine-derived cortical bone and it's therefore remodeled by the osteoclasts: that is why its estimated protection time is approximately 10-12 months, much longer than common collagen membranes. It also stabilizes the graft and prevents the micromovements that may hinder the bone regeneration process.

GIAACOMO TARQUINI, DDS



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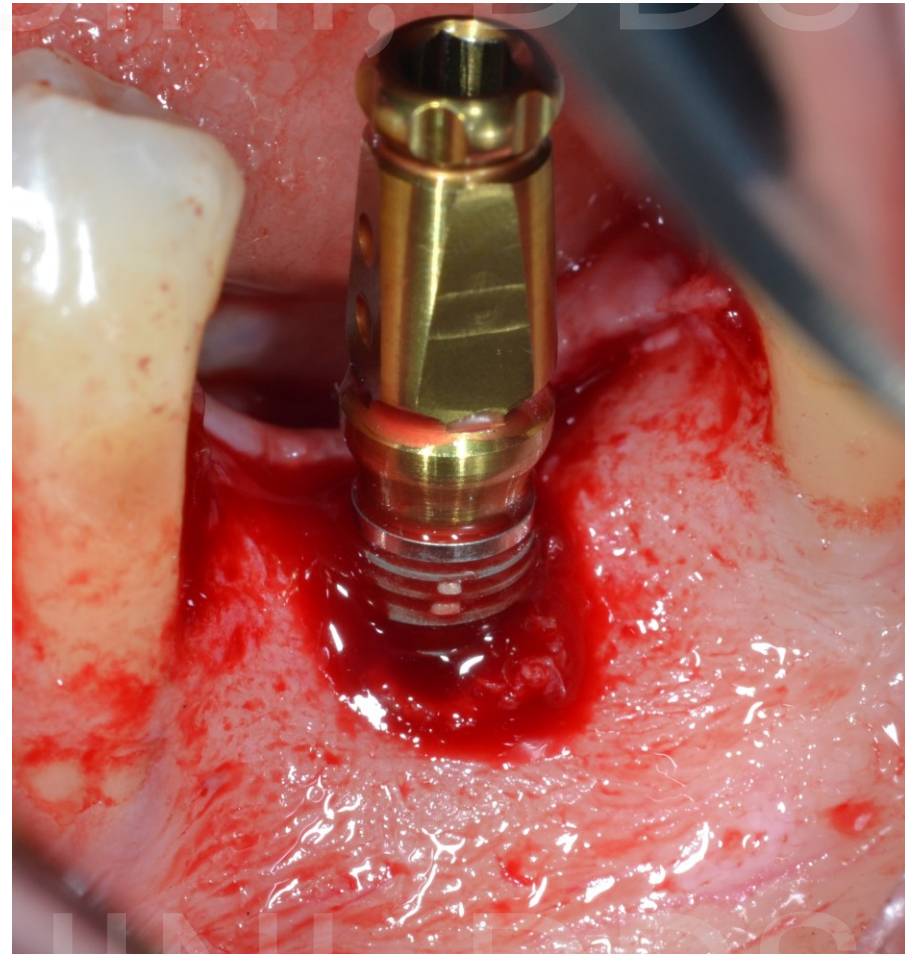
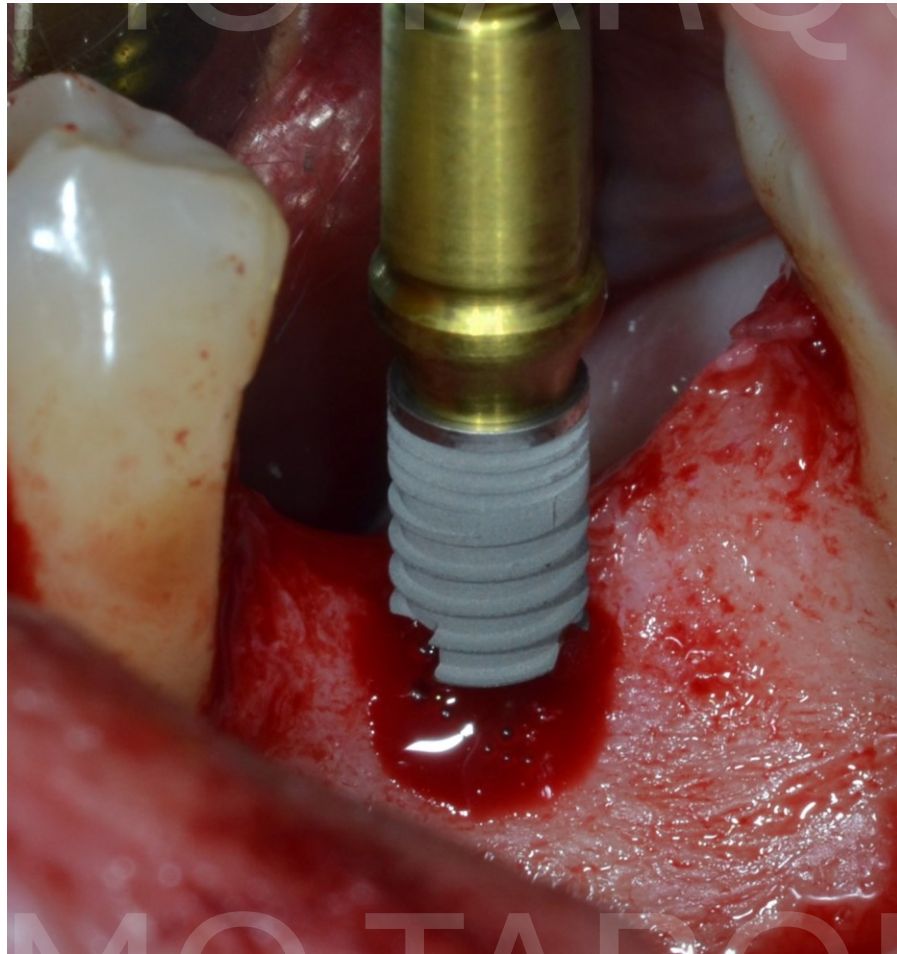
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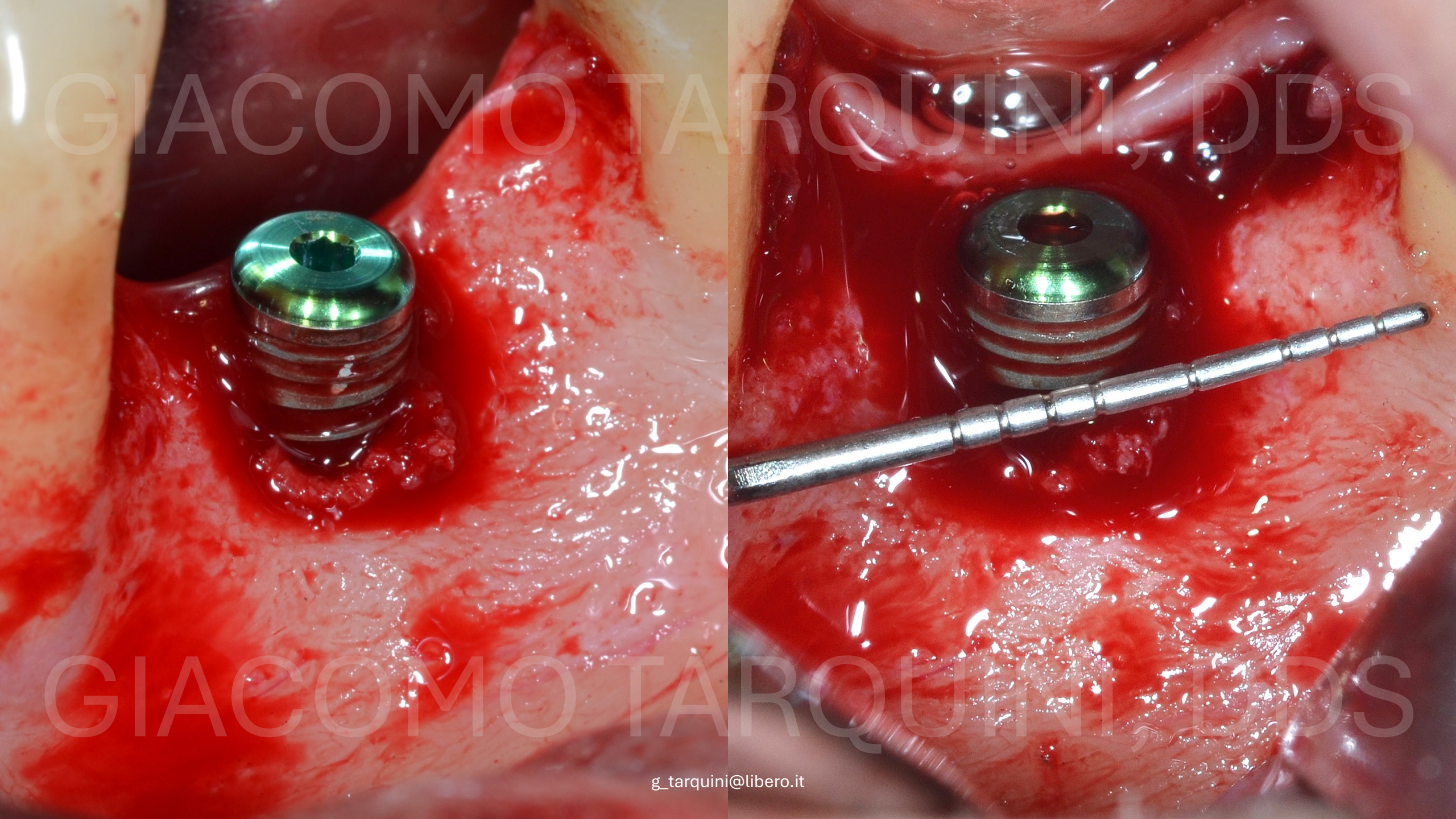


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GIACOMO TARQUINI, DDS



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Peri-Implant Guided Bone Regeneration

Hard- and soft-tissue management with innovative products

BY DR. GIACOMO TARQUINI

Introduction

Implant-supported prosthetic rehabilitation in the presence of significant horizontal bone defects requires particular care and skill from the oral surgeon. Even if it is possible to place implants, the presence of the defect, typically on the buccal, may jeopardize the rehabilitation's functional and aesthetic success in both the short and long term. In such cases, it is often necessary to perform a peri-implant bone regeneration procedure at the same time.

Guided bone regeneration (GBR) is

bone on the other side to create a protected space for the blood clot to form and organize, thus allowing bone cells coming from marrow spaces to repopulate the defect and to mature into new bone.

Ideally, barrier membranes used in GBR should have features that allow them to suitably protect the bone tissue long enough for the bone regeneration to be completed. They are chosen based on the anatomical characteristics of the defect, including its size, the number of bony walls and the available surface of

have some drawbacks, including the need for a second surgical procedure for their removal and their tendency to become exposed into the oral cavity. Resorbable membranes, meanwhile, are regarded as a safer option for almost any regeneration procedure nowadays because of their higher biocompatibility.

In certain cases, the recourse to resorbable barrier membranes with a longer protection period may represent an ideal compromise that significantly increases the predictability of the regeneration therapy, especially in



Fig. 1

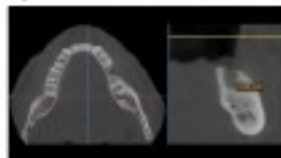


Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7

osteoclasts. This is why its estimated protection time is approximately 10-12 months, much longer than common collagen membranes. It also stabilizes the graft and prevents any micromovements that may hinder the bone regeneration process.

Case description

The following case illustrates implant placement associated with GBR to replace a missing mandibular first molar. The surgical protocol entails using an heterologous bone substitute obtained via an exclusive enzymatic

onto the regenerated bone to thicken the peri-implant keratinized tissue while avoiding the need to harvest an autogenous connective tissue graft (CTG).

Surgical procedure

The patient presented with an edentulous space (Fig. 1) caused by a missing mandibular first molar, which had been extracted six months previously. Horizontal bone atrophy (Seibert's Class I) was detected during X-ray examination (Fig. 2).

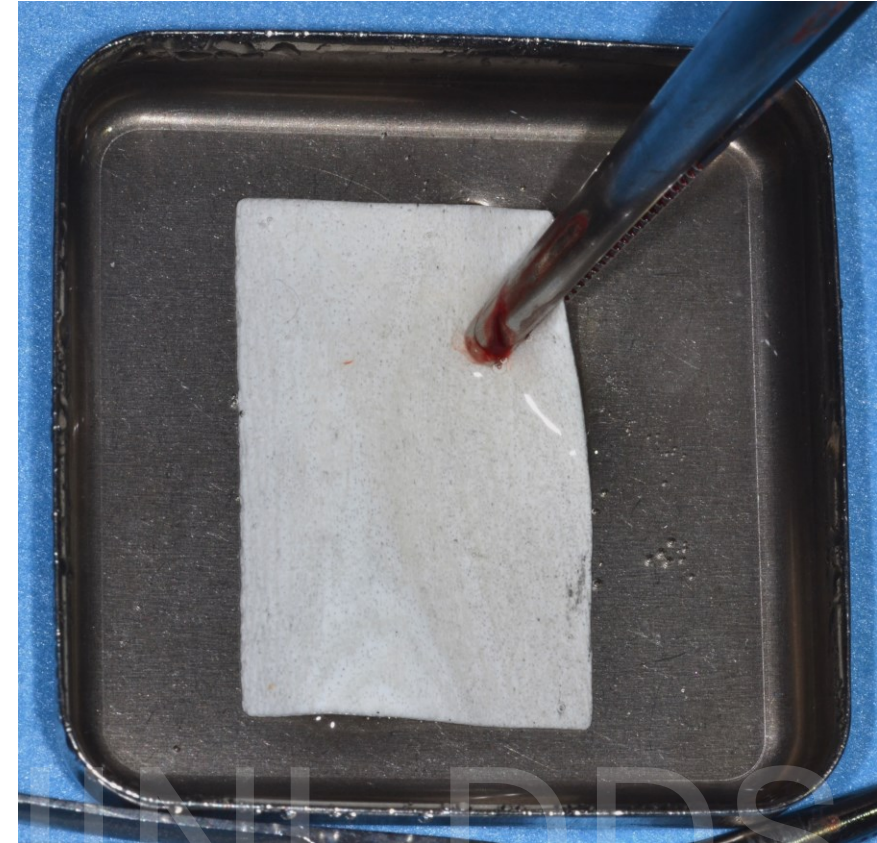
Once a full-thickness flap had been

the insertion of an osseointegrated implant associated with the regeneration of the defect through a GBR protocol. The patient granted his informed consent to the procedure.

A full-thickness flap was raised to access the surgical site, and lingual and buccal flaps were released to advance tissue coronally without any tension.

The implant site was prepared with the aid of drill stops (Fig. 4) and the implant was then inserted (Fig. 5) flush to the lingual bone crest (Fig. 6). [Editor's note: For complete informa-

5-6 SECONDS HYDRATION WITH STERILE SALINE TO MAKE FLEX CORTICAL SHEET FLEXIBLE



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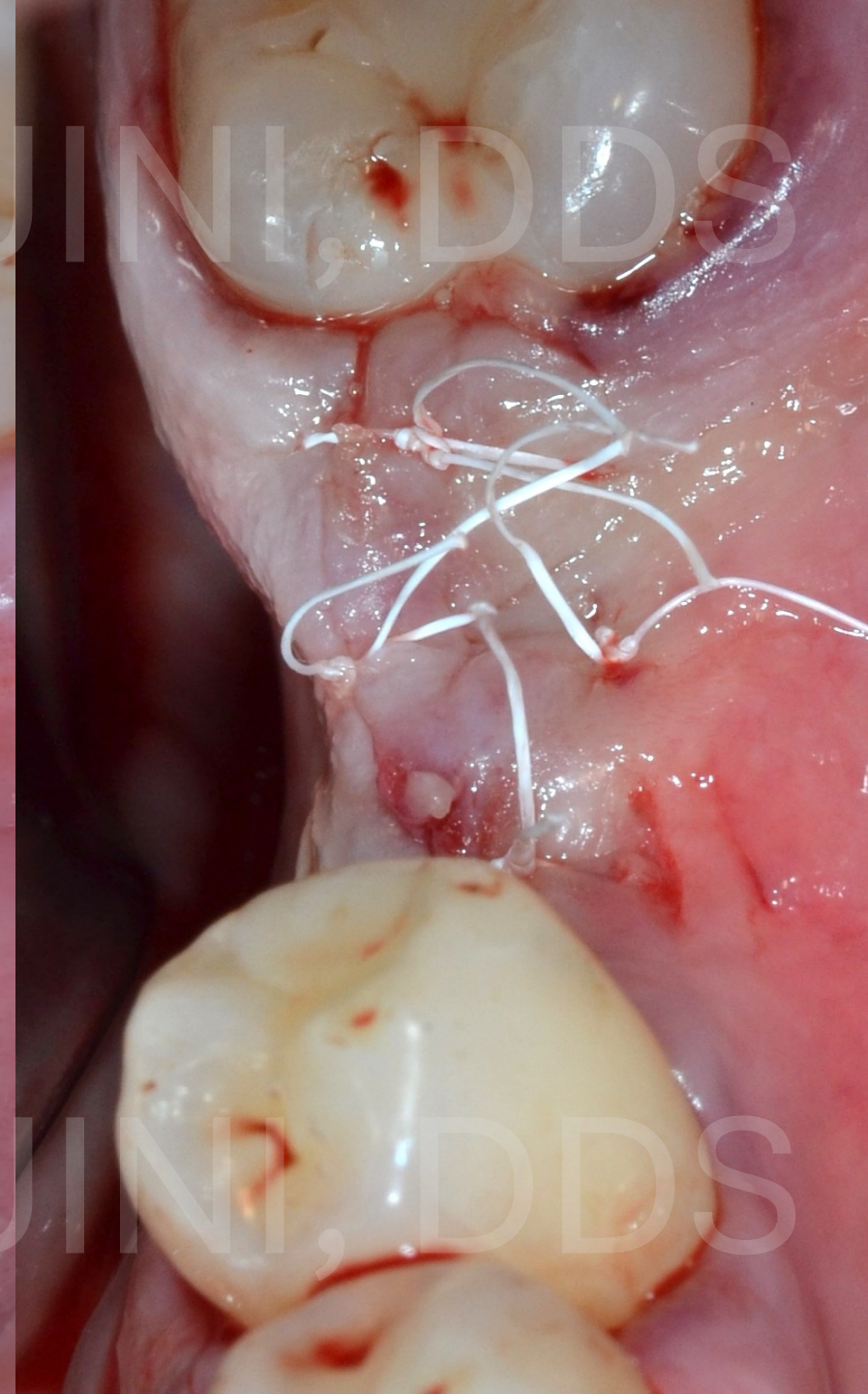


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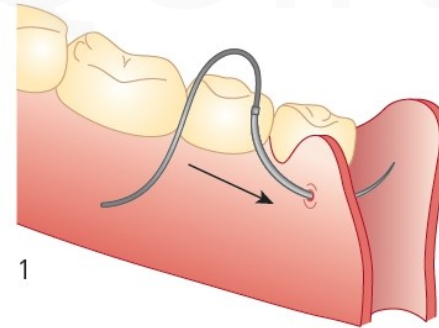
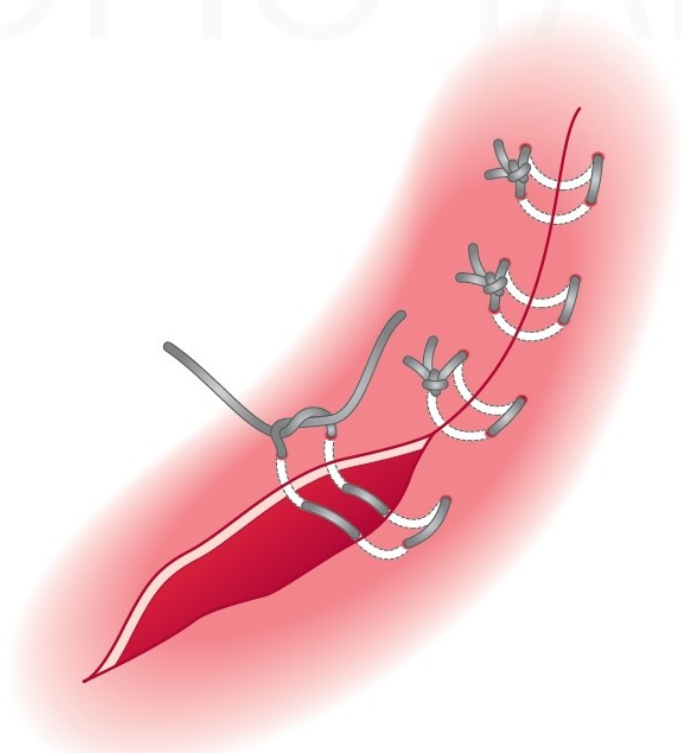
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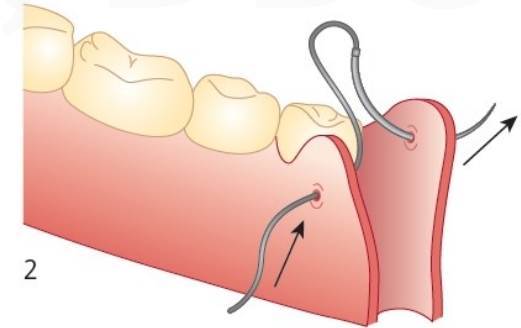


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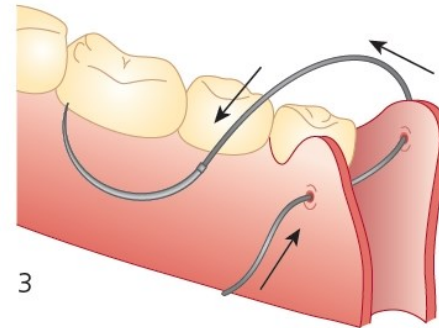
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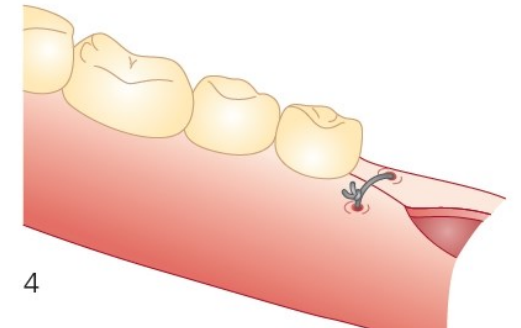
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4

Tarquini G.

Tecniche di chirurgia parodontale: dalla diagnosi alla terapia. Edizioni EDRA (Settembre 2017)

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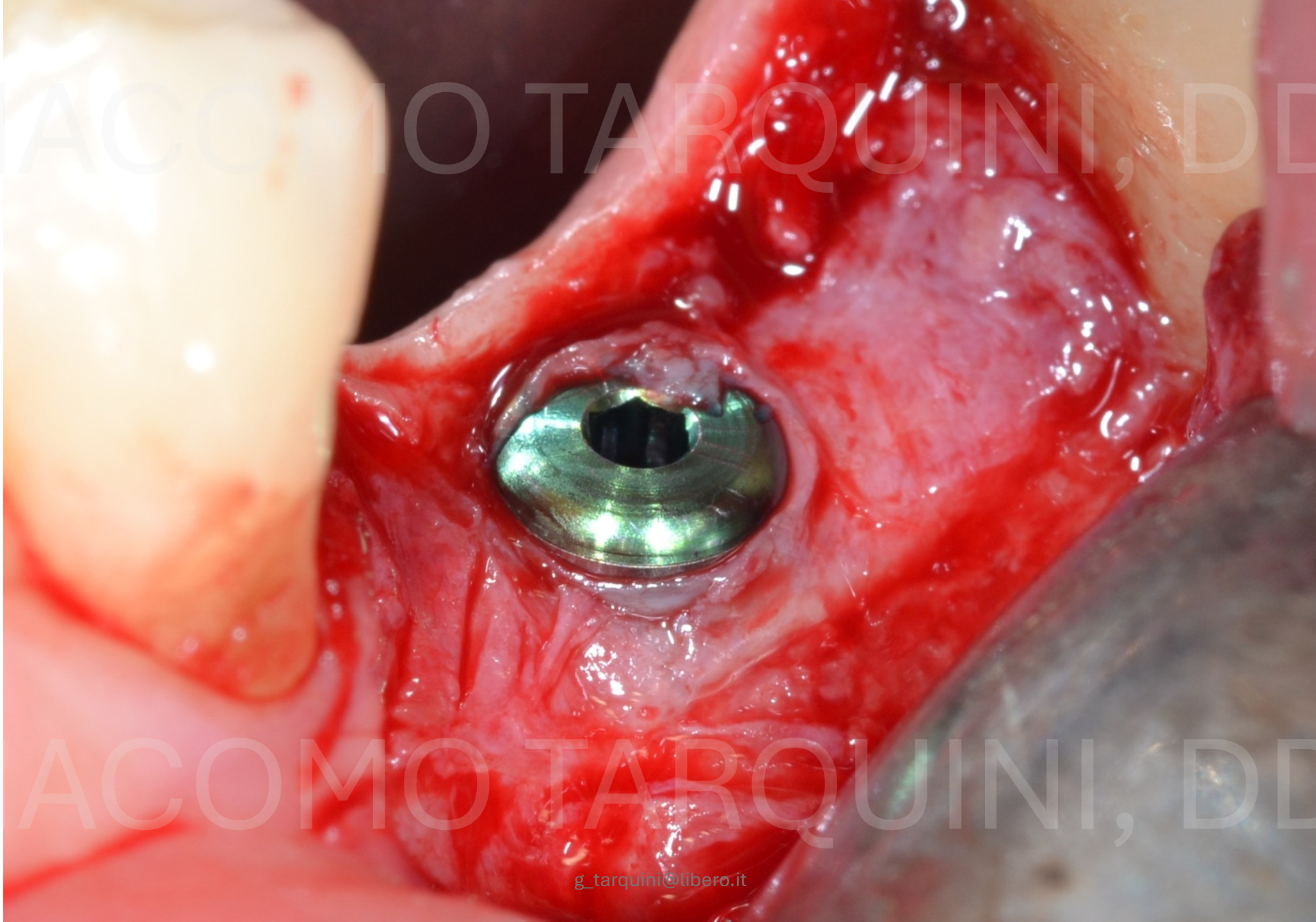
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6 MONTHS HEALING

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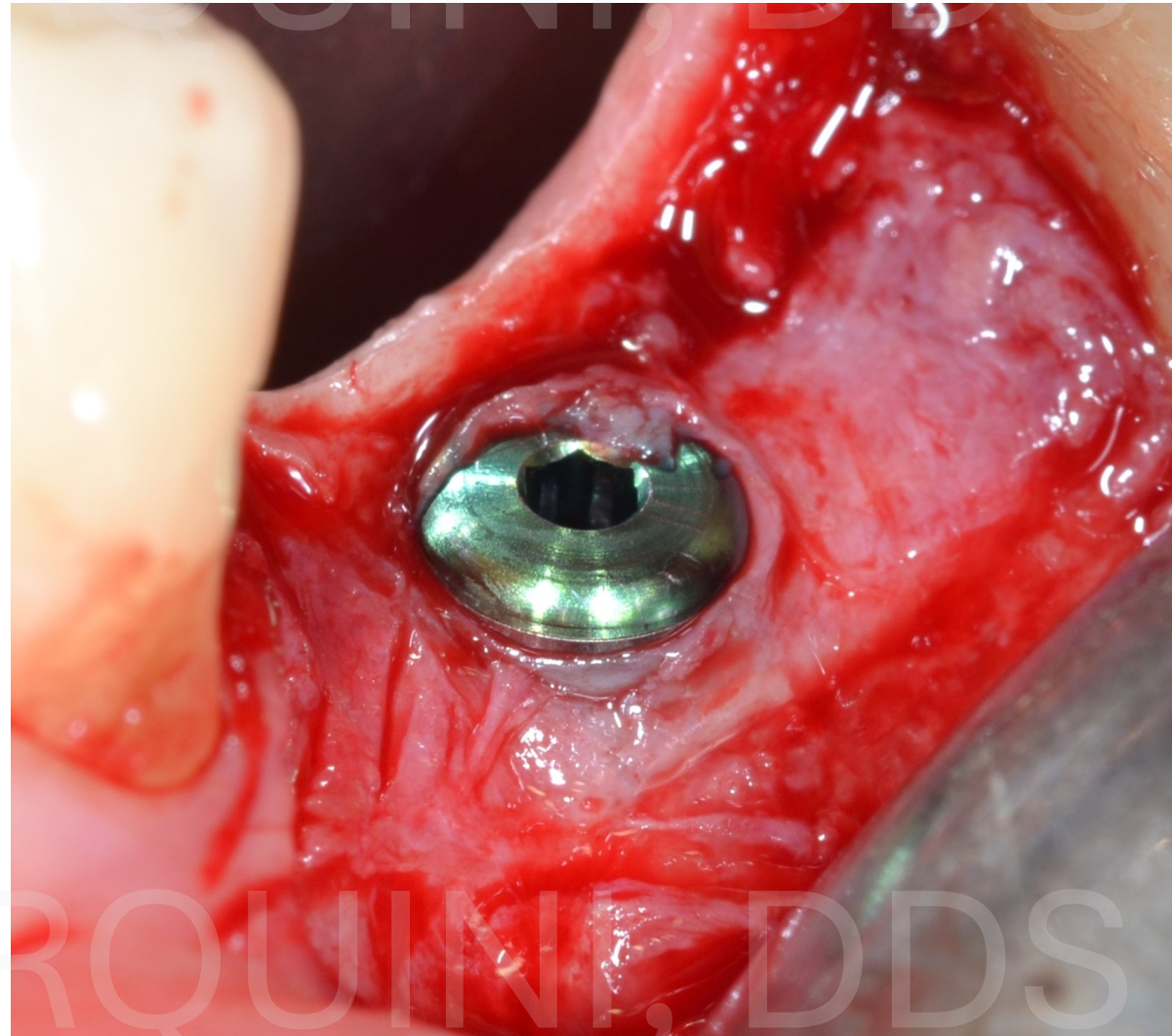
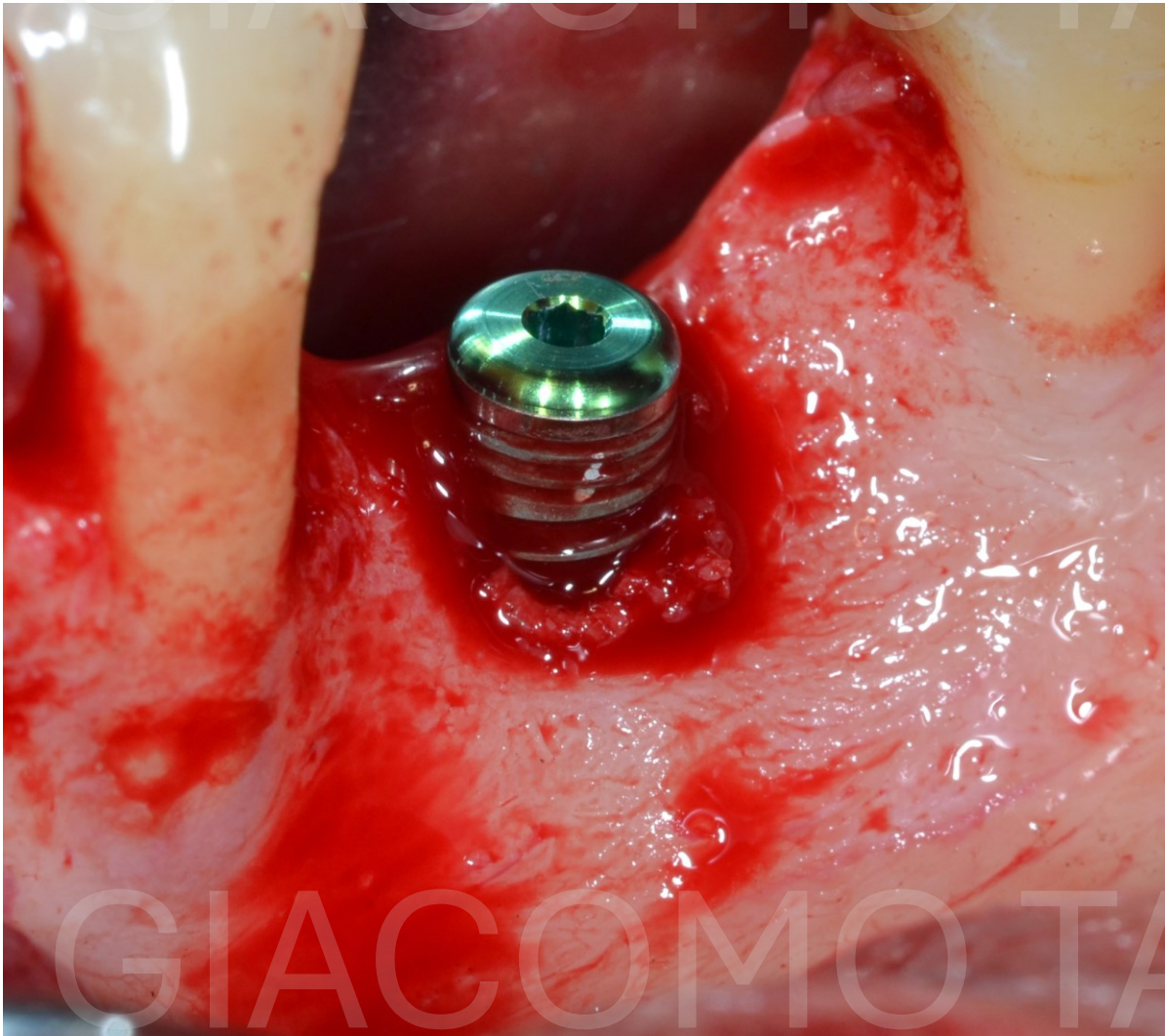
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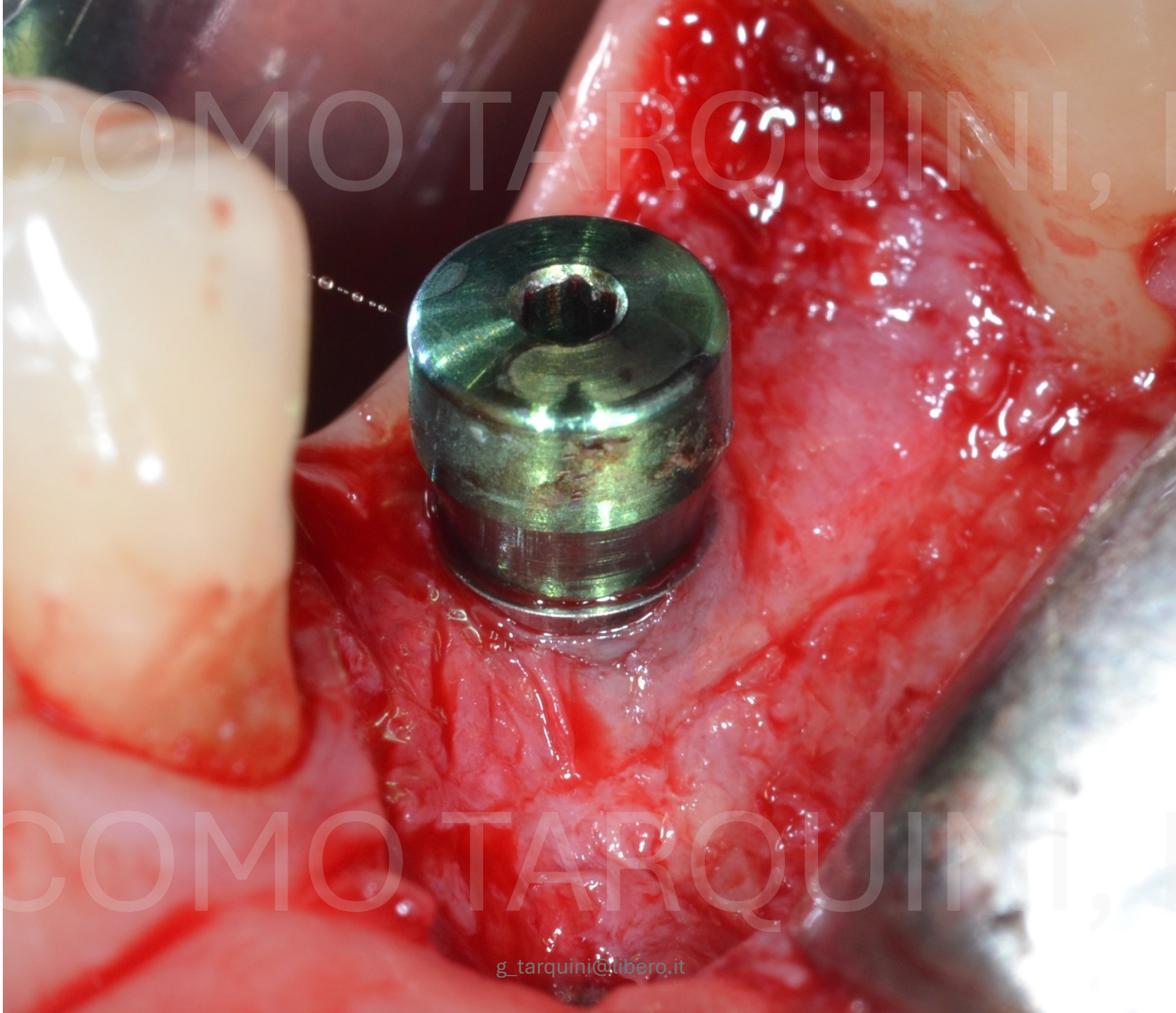
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BEFORE

AFTER



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Rigenerazione Tissutale Guidata (G.T.R.) di un difetto intraosseo circolare: presentazione di un caso clinico

Autore: Giacomo Tarquini, odontoiatra libero professionista in Roma



Incidentalmente, in occasione della scoperta dell'impianto precedentemente inserito, si sceglie di constatare de visu la rigenerazione ottenuta intorno all'elemento 4.5: al sollevamento del lembo è possibile apprezzare la presenza di matrice collagenica tridimensionale in alternativa a un prelievo di tessuto connettivo dalla volta palatina: dopo aver posizionato il lembo apicalmente alla cresta ossea, si procede alla sutura a punti strettissimi (Fig. 22-23-24-25-26-27).

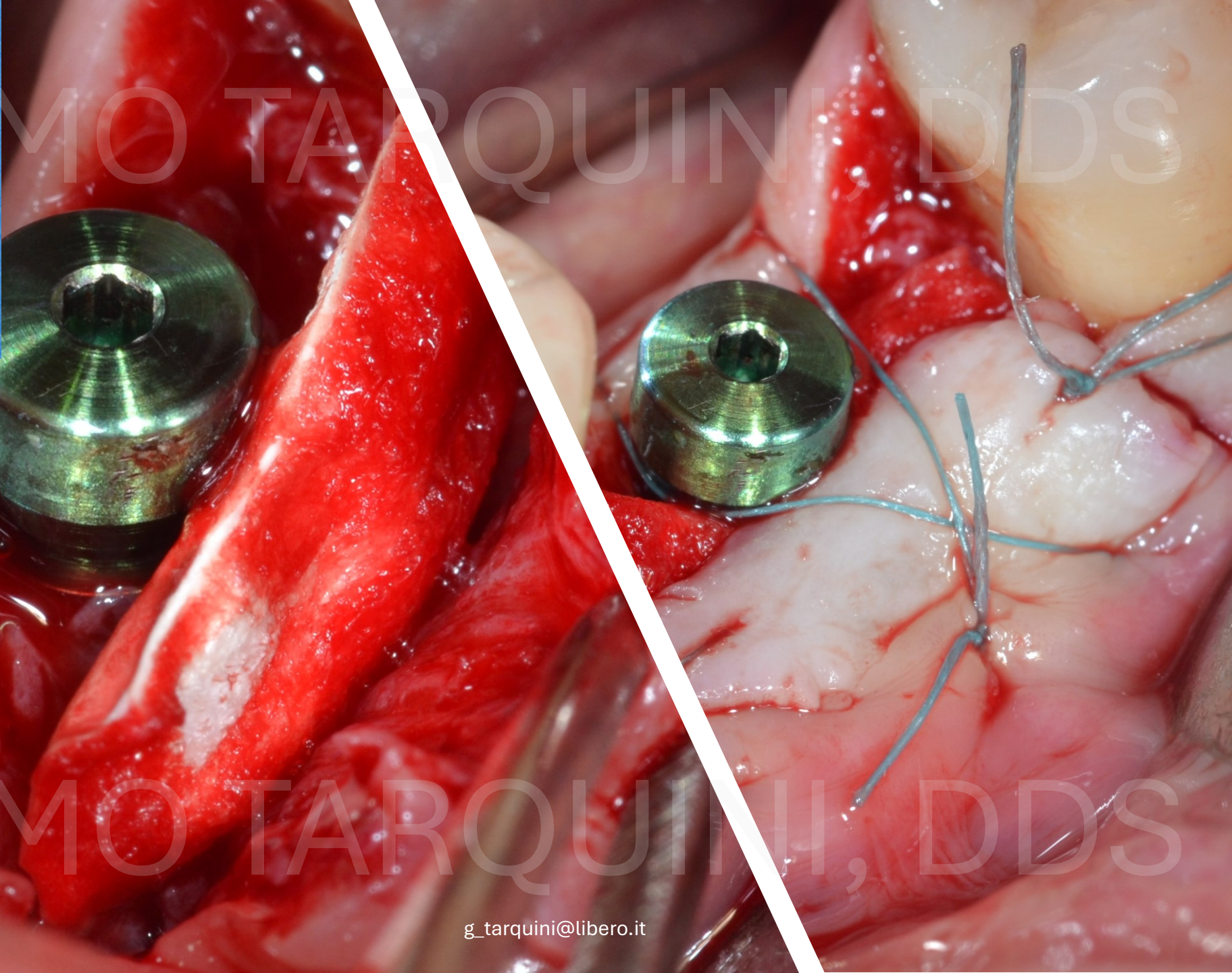
In order to increase the width and thickness of the peri-implant tissues, an apical sliding flap is then performed associated with a three-dimensional collagen matrix graft

Tarquini G. Rigenerazione Tissutale Guidata (G.T.R.) di un difetto intraosseo circolare: presentazione di un caso clinico. *Implants Italy*; 2/2018: 08-14



piezoelettrico.
_Caso clinico
Paziente di aa. 62, femmina, giunge all'osservazione lamentando mobilità dell'elemento 4.5, dolorabilità e sanguinamento evocato durante le manovre di igiene orale (Fig. 1).
Al sondaggio parodontale e all'esame radiografico endorale si evidenzia una consistente infiammazione del parodonto marginale associata a un vasto difetto intraosseo di tipo circolare che interessa la superfi-





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3 YEARS FOLLOW-UP



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Guided bone regeneration (GBR) is one of the best-documented procedures to achieve that result: It entails the placement of a barrier membrane between epithelial and connective tissues on one side and implants and

bone on the other side to create a protected space for the blood clot to form and organize, thus allowing bone cells coming from marrow spaces to repopulate the defect and to mature into new bone.

Ideally, barrier membranes used in GBR should have features that allow them to suitably protect the bone tissue long enough for the bone regeneration to be completed. They are chosen based on the anatomical characteristics of the defect, including its size, the number of bony walls and the available surface of viable bone.

Nonresorbable barriers, mostly made of expanded polytetrafluoroethylene (e-PTFE), are highly successful for GBR procedures but

have some drawbacks, including the need for a second surgical procedure for their removal and their tendency to become exposed into the oral cavity. Resorbable membranes, meanwhile, are regarded as a safer option for almost any regeneration procedure nowadays because of their higher biocompatibility.

In certain cases, the recourse to resorbable barrier membranes with a longer protection period may represent an ideal compromise that significantly increases the predictability of the regeneration therapy, especially in noncontaining bone defects.

Flex cortical sheet (FCS) is a barrier membrane made from enzyme-treated, equine-derived cortical bone and it is therefore remodeled by the

Conclusions

The recourse to resorbable FCS with a longer protection period may represent the ideal compromise between nonresorbable e-PTFE and collagen membranes, especially in noncontaining bone defects. Such findings were confirmed by a direct clinical evaluation at reentry surgery, which revealed that the bone defect had been repaired and the aspect was that of

the newly formed mature bone of the patient without the presence of bone granules. Moreover, the use of collagen matrix as an alternative to autologous CTG reduced the patient's discomfort and surgical time length, with a better cost-effectiveness ratio.

These results call for confirmation using well-designed controlled prospective studies involving a larger patient population. **DT**



Dr. Giacomo Tarquini graduated with honors in dentistry and dental prosthetics from the Sapienza University of Rome in 1994, and has been practicing dentistry for about 25 years. Today he practices in Rome with particular interest in the disciplines of periodontology and implantology. He is also a consultant, professor, tutor and lecturer for a variety of dental specialties. Along with various articles, Tarquini is the author of the textbook *Techniques of Periodontal Surgery: From Diagnosis to Therapy*.

- **Conclusions:**

- The recourse to resorbable flex cortical Sheet (FCS) with a longer protection period may represent the ideal compromise between non-resorbable e-PTFE and collagen membranes, especially in non-containing bone defects.
- Such findings were confirmed by a direct clinical evaluation since at reentry surgery, which revealed that the bone defect was repaired and the aspect was that of the newly formed mature bone of the patient without the presence of bone granules.
- Moreover, the use of CM as an alternative to autologous CTG reduced both patient's discomfort and surgical time length with better cost-effectiveness ratio.