

Septodont Case Studies *Collection*

No. 26 - June 2024

**Collagenous socket
(p)reservation after
atraumatic extraction**

Dr. Juraj Brozović



**Post-extraction bone filling
before implant placement**

Dr. Bruno Salsou



**Sinus filling for
implant placement**

Dr. Bruno Salsou



**Post-extraction implants
with alveolar preservation**

Dr. Carlos Parra Rogel



Editorial

The Septodont Case Studies Collection is a series of case reports created to showcase the effective utilisation of our products in various scenarios, ranging from simply challenging to the most complex clinical situations.

Over the years, authors from more than 15 countries have generously contributed to the success of our magazine, which is now distributed on five continents.

Each new issue of the Case Studies Collection is an opportunity to discover new clinical challenges and their treatment solutions. The 26th issue focuses on successful bone regeneration following teeth extraction with 4 cases presenting SeptoCone, R.T.R.+, and R.T.R.+ Membrane.

- Discover how Dr. Juraj Brozović uses SeptoCone to stabilise blood clots, promote bone healing, and prevent excessive resorption of the alveolar bone. This technique is showcased in his clinical case on **collagenous socket reservation following atraumatic extraction**.
- Dr. Bruno Salsou demonstrates the use of R.T.R.+ to enhance bone regeneration before implant placement. Throughout two case studies, one on **post-extraction bone filling** and one on **sinus filling for implant placement**, Dr. Salsou highlights how the material's formulation makes it easier to place and enhances bone healing. This approach is effective for both standard post-extraction cases and more extensive sinus lift procedures.
- In his case study **post-extraction implants with alveolar preservation**, Dr. Carlos Parra Rogel emphasises that using a membrane is crucial to ensure correct healing in bone regeneration processes and prevent the invasion of soft tissue. Thanks to its 100%-synthetic formulation, R.T.R.+ Membrane not only fulfilled membrane expectations but also addresses the drawbacks of non-synthetic membranes.

The cases are written by the practitioners, the products' application in every case is under the responsibility of the author. Septodont reminds that every product has an official indication, available in the product's information notice.

Content



Collagenous socket (p)reservation after atraumatic extraction

Dr. Juraj Brozović

04



Post-extraction bone filling before implant placement

Dr. Bruno Salsou

07



Sinus filling for implant placement

Dr. Bruno Salsou

09



Post-extraction implants with alveolar preservation

Dr. Carlos Parra Rogel

11

Collagenous socket (p)reservation after atraumatic extraction



Juraj Brozović

Why did you choose to specialise in oral surgery?

Oral Surgery faces a broad spectrum of clinical challenges and has the modalities to solve complex cases where conservative treatments do not suffice. Moreover, its scope reaches beyond dentoalveolar surgery, and requires dedication and discipline to stay relevant, particularly when augmentative procedures are considered. Personally, I find the fact that we can now place great emphasis on “creating” rather than “destroying” very exciting.

What are the challenges you face, and how do you prepare for the future?

The biggest challenge I face is how to perform somewhat more demanding surgical procedures, such as extensive bone and soft tissue grafts, and yet remain within the minimally invasive domain. Another challenge is facing the occasional unrealistic expectations leaning towards quick and less proven solutions, where good communication in justifying a biologically-driven approach is the key. I believe that an evidence-based attitude and keeping pace with the literature and technology keeps us on the safe side in the future.

What was your first impression when you started using SeptoCone? For how long have you been using SeptoCone?

My experience with concentrated collagenous materials -- cones in particular -- goes back well beyond a decade. My first impression is that they are supple, stable and easily mouldable materials.

In which situations do you use SeptoCone and why?

I use SeptoCone in a variety of indications, ranging from simple extractions to filling small cystic bone cavities. They perform well in blood clot stabilisation in such contained defects when we want minimal interference of the material with the healing process. In sockets, I like to call it socket “reservation”, resulting in just a stable clot, as opposed to “preservation”, when the particulated material is introduced as an attempt to minimise bone loss. This material is particularly useful in managing bleeding-prone patients for its mouldability, compressive properties and ease of use; one tooth-shaped cone and a criss-cross suture can help a great deal. Another indication in which it stands out is the minimally invasive management of small oro-antral communications and open sinuses after simple extractions. Paired with microsutures, this approach can prevent tissue warp found after standard procedures and lower the postoperative discomfort for the benefit of the patient.

| Case report

The patient, a healthy 57-year-old male with good oral hygiene, presented with multiple deficient old composite restorations and no pain. He was diagnosed with premolar root fracture (tooth 35). After atraumatic extraction, in order to avoid excessive resorption of the alveolar

bone, socket reservation was performed using SeptoCone - a high-density collagen cone - providing blood clot stabilization and thus facilitating bone healing. A single implant was placed, showing a stable outcome at 6 years follow-up.



Fig. 01: Clinical situation - tooth 35.



Fig. 02: The tooth is atraumatically extracted with the Benex system, keeping maximum alveolar bone walls intact.



Fig. 03: Thorough curettage of the socket is performed after atraumatic extraction.



Fig. 04: SeptoCone is placed in the empty socket of the single-rooted premolar site. The cone can be gently compressed with the fingers to fit the socket shape.



Fig. 05: SeptoCone can be safely pushed to the extreme bottom of the root using gentle pressure.

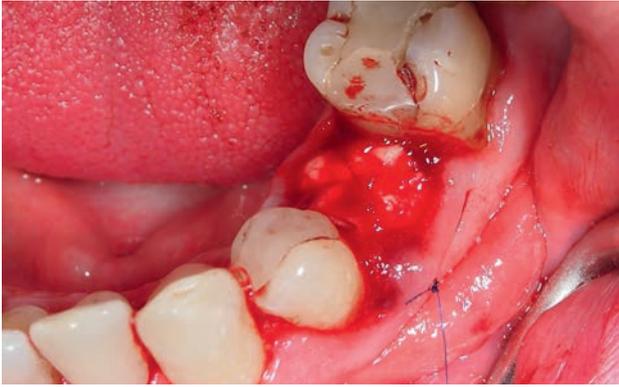


Fig. 06: A cross-mattress (x) suture is placed to avoid the loss of cone while swallowing or chewing in the first hours. Recommended suture type is a fast-absorbing suture of 5-0 or less. SeptoCone allows open healing, per great collagen mass.

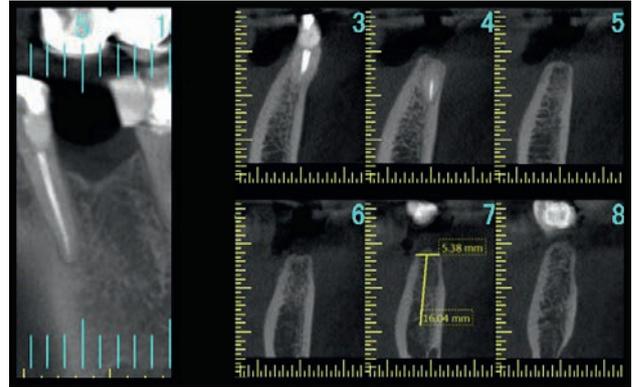


Fig. 07: Follow-up CBCT at four months post-extraction. The extraction socket is completely remodeled with new woven bone.



Fig. 08: Six months after uneventful hard and soft tissue healing, an implant is placed in the site of tooth 35.

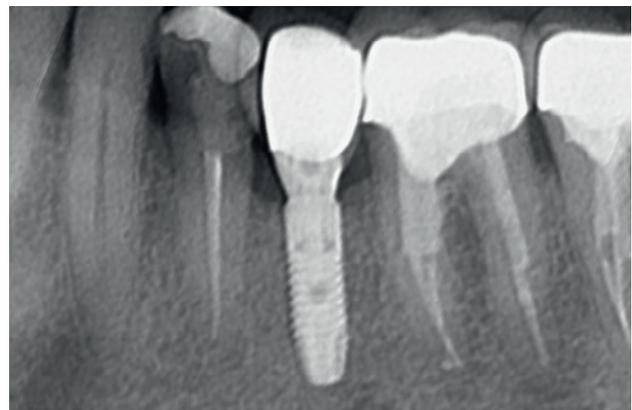


Fig. 09: Follow-up x-ray at 6 years.



Author:
Juraj Brozović
Specialist in Oral Surgery.
Assistant Professor, Faculty of Dental Medicine and Health Osijek.
Doctor of Dental Medicine.

Post-extraction bone filling before implant placement

Dr. Bruno Salsou

| Case report

Clinical signs

A 55-year-old patient presented with significant mobility in tooth 36.

A retro-alveolar radiographic examination showed a level 3 furcation defect preventing the preservation of the tooth.

Diagnosis

The decision was made to extract the tooth and perform bone filling so as to permit implant placement.

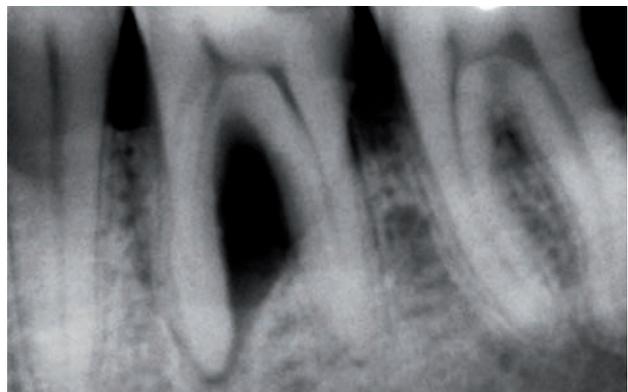


Fig. 01: Pre-operative examination. Furcation defect in tooth 36.

Operating procedure



Fig. 02: Clinical presentation.



Fig. 03: Fractured tooth extracted.



Fig. 04: Post-extraction alveolus.



Fig. 05: Syringe with R.T.R.+ / MBCP® Technology filling material, 0.5-1 mm diameter granules.



Fig. 06: R.T.R.+ / MBCP® Technology filling material saturated with blood.



Fig. 07: Alveolus 36 filled with R.T.R.+ / MBCP® Technology.



Fig. 08: Protection of the graft with PRF membranes.



Fig. 09: Repositioning of flap and suture with 3-0 silk.

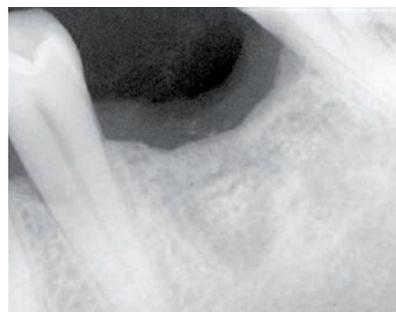
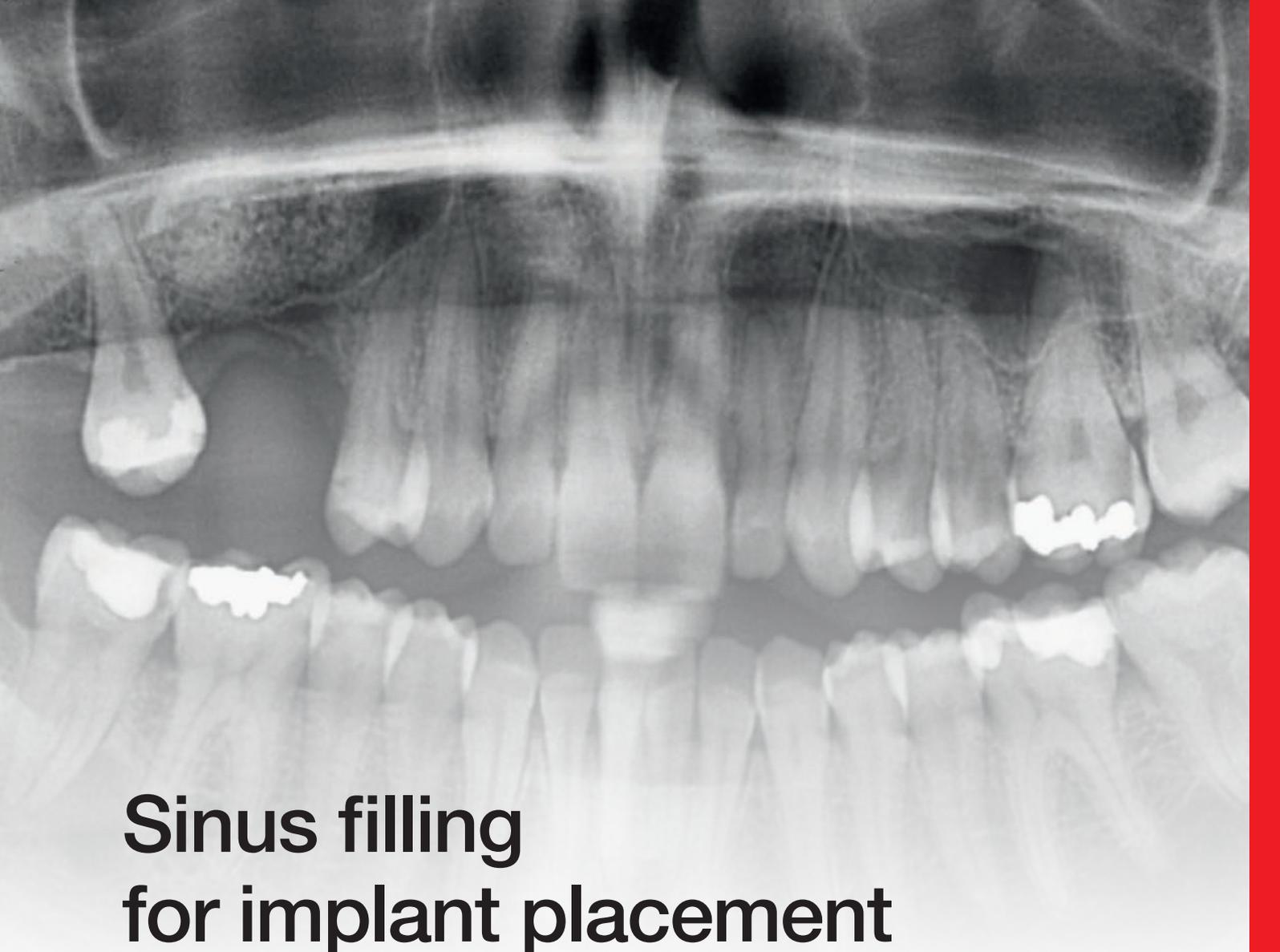


Fig. 10: 6 month follow-up - Radiography shows significant bone gain. Implant placement can now be considered under optimal conditions.

Conclusion

The packaging of R.T.R.+ / MBCP® Technology in pre-filled syringes facilitates the handling and placement of the material.

The conglomerate formed with clotted blood helps to ensure the retention of the material within the alveolus, an essential element for good bone healing.



Sinus filling for implant placement

Dr. Bruno Salsou

| Case report

Clinical signs

As a result of caries problems, a 25-year-old patient lost teeth 15 and 16.

A retroalveolar radiographic examination showed large sinus volume, which in such condition would prevent the placement of implants to replace the missing teeth.

Diagnosis

The decision was therefore made to perform a sinus lift.

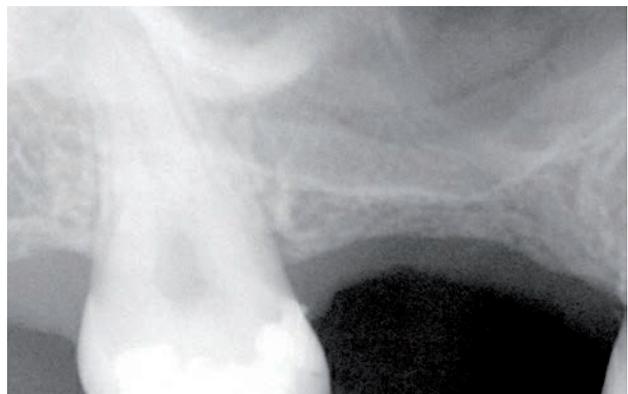


Fig. 01: Pre-operative examination - Radiographic examination showing large sinus volume.

Operating procedure



Fig. 02: Opening of bone flap with piezosurgery.



Fig. 03: Placement of 1-2 mm diameter granules of R.T.R. /MBCP® Technology filling material using the delivery syringe.



Fig. 04: Sinus filling completed.



Fig. 05: Repositioning the flap to close off the site tightly. Suturing the area. End of operation.

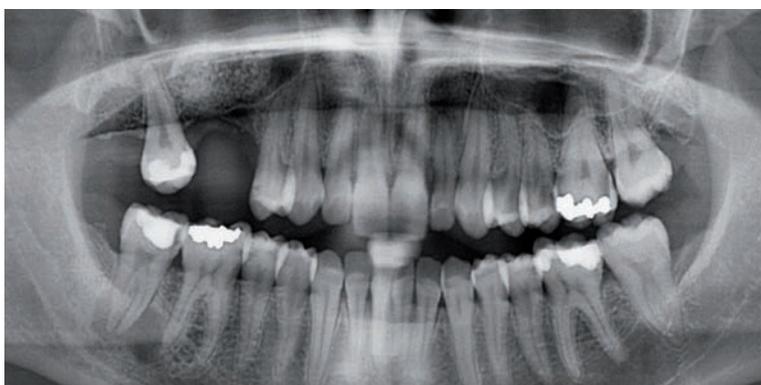


Fig. 06: Immediate post-operative check - Panoramic radiographic examination showing the bone gain obtained following the sinus-lift in sector 1.

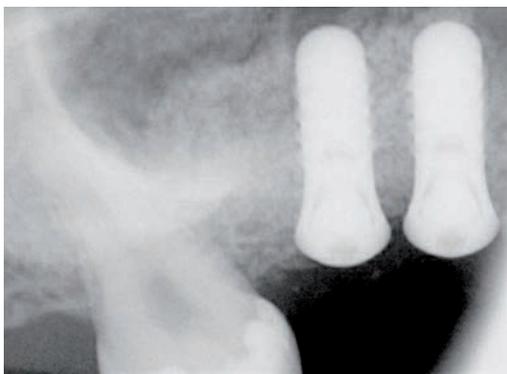


Fig. 07: 6 month follow-up - Placement implants, 4.1mm in diameter and 10mm in length.

Conclusion

The highly granular consistency of the material permits easier placement and prevents the dispersion of the R.T.R.+ / MBCP® Technology granules.

The stability of the material also optimizes bone healing.

Post-extraction implants with alveolar preservation



Dr. Carlos Parra Rogel

| Introduction

This case concerns post-extraction implants with alveolar preservation in the posterior upper left area, where a patient presented with root remains of teeth 15 and 16. The decision was taken to extract the root remains and place

implants in the same session, performing alveolar preservation with the patient's own autologous bone to prevent further cortical bone loss and improve the prosthodontic prognosis.

Case report

Clinical signs

The patient presented with coronal fractures of teeth 15 and 16. Upon intraoral examination, gingival inflammation and associated retraction were identified in tooth 15, and inflammation and a small abscess were identified in tooth 16. Upon radiographic examination, no signs of infection were observed, but bone resorption was present at the coronal level of both teeth.

Diagnosis

The decision was taken to extract both teeth and immediately place implants in the same surgical procedure, together with bone regeneration with autologous bone from the donor area, covered with R.T.R.+ Membrane from Septodont.

Procedure and treatment

An initial x-ray was taken (Fig.1) and teeth were extracted after root sectioning with a high-speed handpiece in order to avoid fracturing the bone walls (Fig. 2-3).

After flap raising, an implant was placed in the socket of each extracted tooth. The drilling and placement were done at low speed and low torque respectively in order to be as conservative as possible (Fig. 4-8).

To preserve the extraction sockets, autologous bone grafts from the patient's own donor site were used (Fig. 9).

The entire area was then covered with a Septodont R.T.R.+ Membrane (Fig. 10). The membrane was fixed to the periosteum with an internal absorbable suture.

The procedure was finished by suturing back the flap with monofilament suture after assuring there was no tension (Fig. 11-12).

Follow up

An x-ray was taken directly after the implant placement (Fig. 13). Crowns were later placed on the implants by the patient's own dentist.



Fig. 01: Initial x-ray.

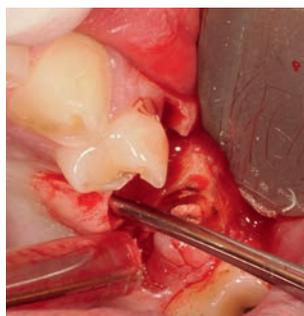


Fig. 02: Loosening of root remains at tooth 15.

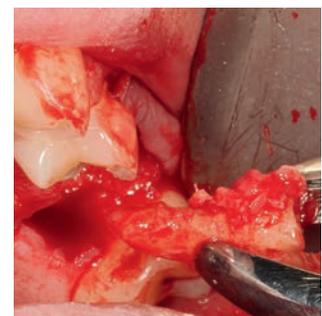


Fig. 03: Extract of root remains at tooth 16 with forceps.

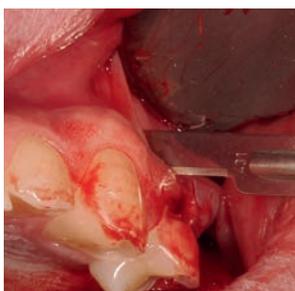


Fig. 04: Releasing incision for flap raising.

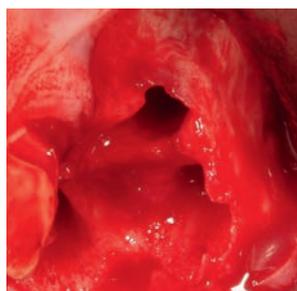


Fig. 05: Surgical area after flap raising.



Fig. 06: Implant placement in the interradicular septum of tooth 16.

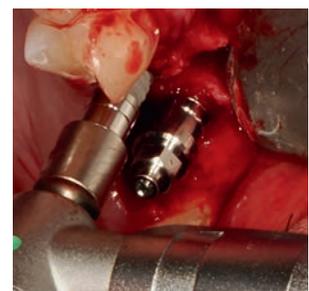


Fig. 07: Implant placement in the socket of tooth 15.

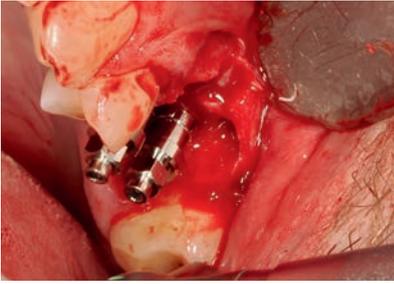


Fig. 08: Both implants in place.

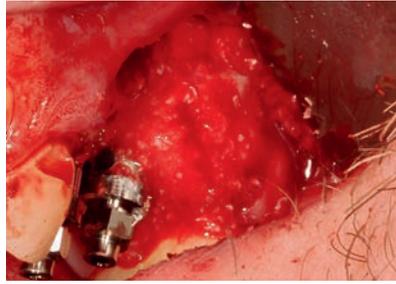


Fig. 09: Autologous bone graft covering the whole bone defect.

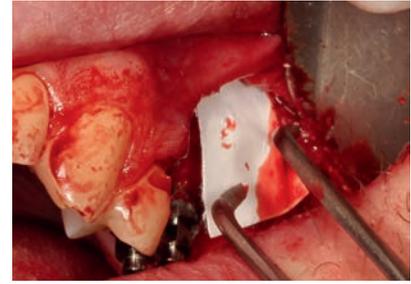


Fig. 10: R.T.R.+ Membrane placement before removal of implant mounts.

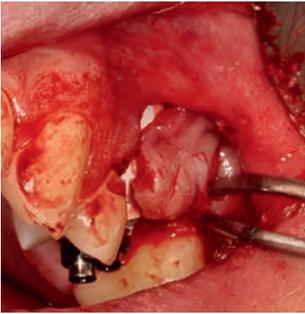


Fig. 11: Checking the flap is free from tension.



Fig. 12: Flap suture after implant mounts release.

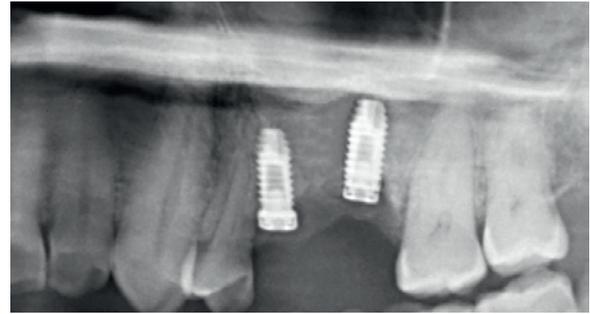


Fig. 13: Initial x-ray.

Discussion

The adjuvant use of barrier methods such as medium- and long-term resorbable membranes ensures correct healing in bone regeneration processes and prevents the invasion of soft tissue, allowing the cells to migrate into the area to form new bone. Resorbable membranes, such as R.T.R.+ Membrane, address the drawbacks on non-resorbable membranes, which are more prone to exposure and may require a second surgery for removal.

Resorbable membranes can be made of collagen or natural polymers. While these

membranes are highly biocompatible and do not require removal, they have a lower mechanical strength. Further, their barrier function can be questionable due to the difficulty controlling their biodegradation.

The newly introduced R.T.R.+ Membrane is a 100%-synthetic, resorbable membrane made of PLGA, with a bilayer structure that provides better mechanical properties, a strong barrier effect, and a resorption time between 4-6 months. It is unaffected by exposure.

Conclusion

It is essential to choose appropriate barrier methods, both in terms of resorption time and material composition, so that the regenerative processes are predictable and optimal results

are obtained for the patient. In this case, the R.T.R.+ Membrane from Septodont appears to be an indispensable ally for this type of surgical approach.



Author:

Dr. Carlos Parra Rogel, Oral and Dental Implants Surgeon

Degree in Dentistry (Alfonso X El Sabio University).

Master's in Oral Surgery, Periodontics, Implants and Prosthodontics (Málaga University).

Advanced Oral Surgery and Periodontics Program (Dental Medicine Faculty, Hadassah, Israel).

Master's in Biomaterials and Advanced Bone Grafting (Salamanca University).

Biomedical Engineering Postgraduate Program (Santiago de Compostela University).

Surgery and Guided Implant Surgery Postgraduate Program (Málaga University).

Expert in Advanced Dental Implants (La Habana University, Cuba).

Expert in Periodontal Plastic Surgery (Complutense University of Madrid).

Expert in Oral Rehabilitation, All-on-4 Technique (Maló Clinic, Lisbon).

Oral and Dental Implants Surgeon, Periodontist and Digital Prosthodontist (Madrid).

Professor at the Master's Degree Program in Oral Surgery, Periodontics, Implants and Prosthodontics (Málaga University).

Key Opinion Leader and Collaborator (Phibo, 3Shape, IPD, and more).

Expert Editor and Opinion Leader in New Technologies and Advances in Dentistry (Dental Practice Journal).

References

1. Abtahi S, Chen X, Shahabi S, Nasiri N. Resorbable Membranes for Guided Bone Regeneration: Critical Features, Potentials, and Limitations. 2023, ACS Materials. <https://doi.org/10.1021/acsmaterialsau.3c00013>.
2. Pellegrini G, Pagni G, Rasperini G. Surgical Approaches Based on Biological Objectives: GTR versus GBR Techniques. 2013, Int J Dent. <http://dx.doi.org/10.1155/2013/521547>.
3. Hoornaert A, d'Arros C, Heymann MF, Layrolle P. Biocompatibility, resorption and biofunctionality of a new synthetic biodegradable membrane for guided bone regeneration. 2016, Biomet Mater. doi:10.1088/1748-6041/11/4/045012.
4. Sasakia JI, Abea GL, Lia A, Thongthaia P, Tsuboib R, Kohnob T, Imazato S. Barrier membranes for tissue regeneration in dentistry. 2021, Biomat Inv Dent. <https://doi.org/10.1080/26415275.2021.1925556>.

NEW

R.T.R.+ Membrane

Guiding your shift towards
synthetic solutions

Easily - Safely - Successfully



Our unique
bilayer
synthetic
membrane





The Dental Pharmaceutical Company

INNOVATIVE, SAFE AND EFFECTIVE SOLUTIONS FOR DENTISTRY WORLDWIDE