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Case Portfolio

Applications of Elemental® hydroplastic bacteriostatic granulate.

Cases documented by

Dr. Kenneth Van Stralen, Dr. Minas Leventis, Dr. Alexander De Greef, Prof. Wim Teughels, Dr. Mustafa Ozcan, Dr. Cristiano Caleffi, Dr. Bernardo Passoni, Dr. Yasmina Miss, Dr. Stuart Kilner, Dr. Alexandre Rovisco, Dr. Federico Mandelli, Dr. Ira Reiz, Dr. Marcus Engelschalk, Dr. Delia Irani, Dr. Violeta Claus, Dr. Fabio Manuel Filannino, Dr. Alina Lazar, Dr. Fabrizia Luongo, Dr. Andrew Johnson, Dr. Eleonora Solyom, Dr. Cleopatra Nacoupulos, Prof. Roberto Crespi, Dr. Koromantzos, Dr. Yin Hui, Dr. Peter Brabant, Dr. Mohammed El Farouki, Dr. Sofia Karapataki

LAST UPDATED: NOVEMBER 2022

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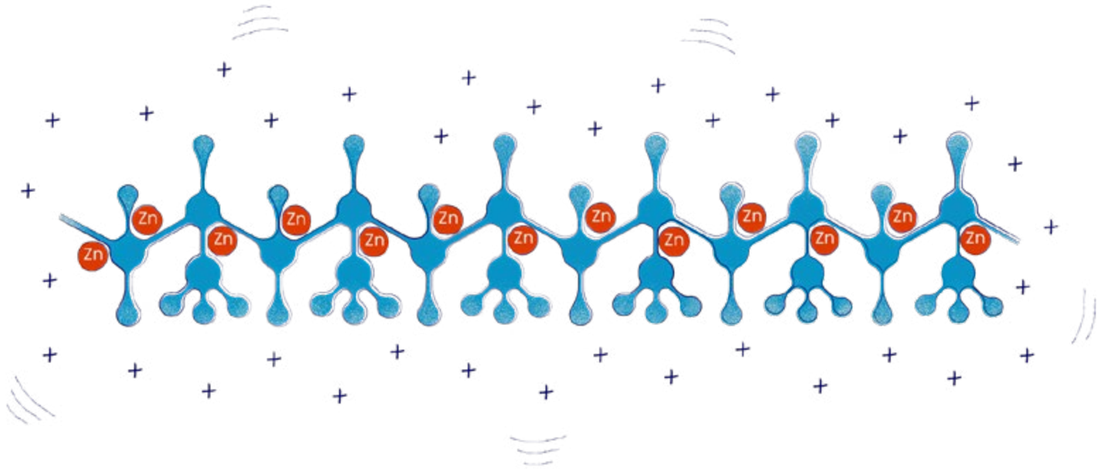
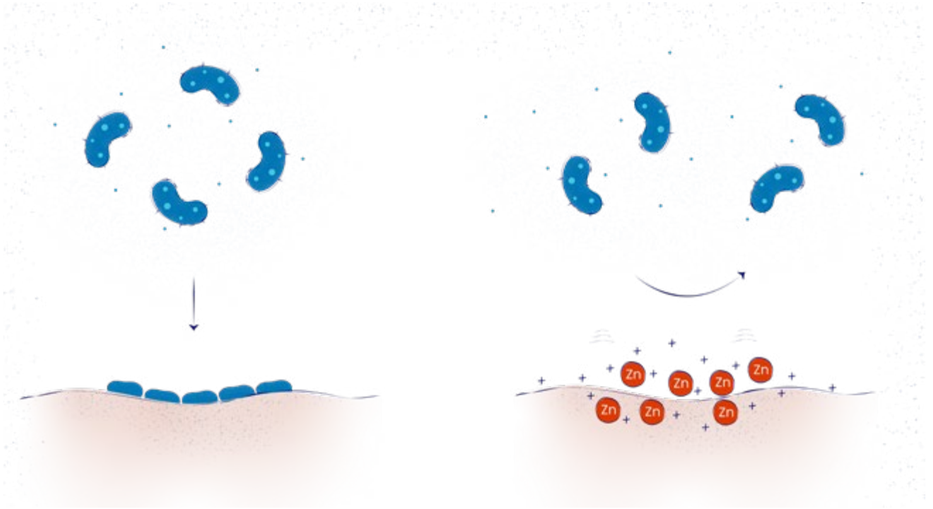
Background: zinc (Zn2+) has anti-inflammatory, antibacterial and wound healing properties.





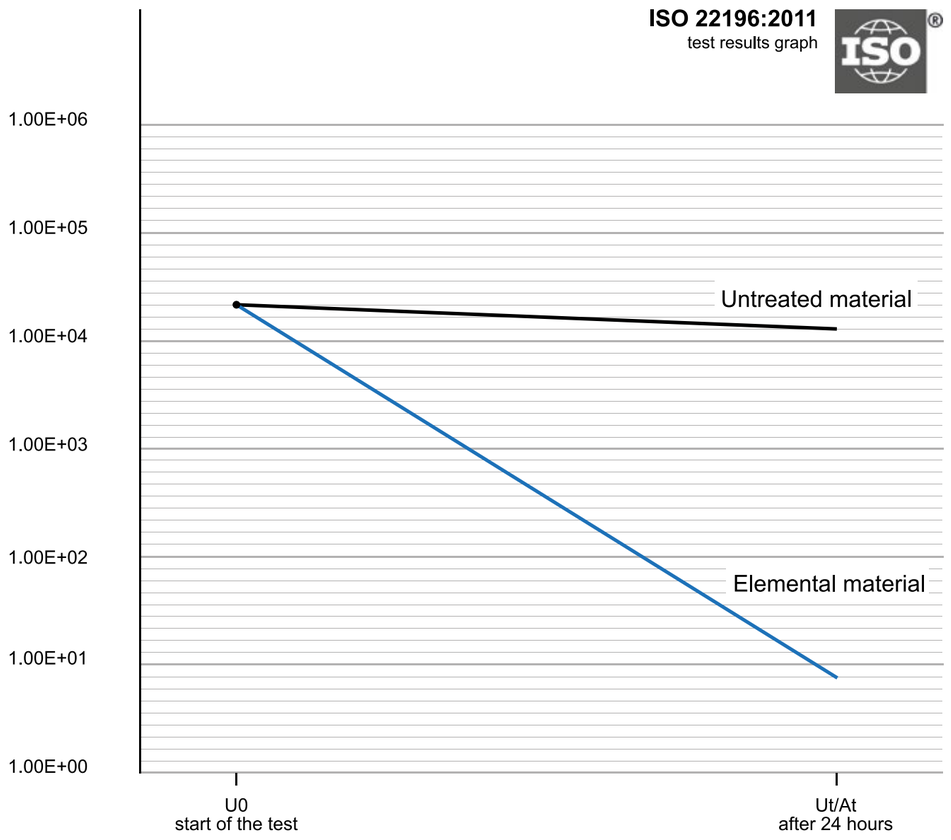
Elemental leverages the antibacterial, anti-inflammatory and wound-healing properties of zinc by incorporating Zn2+ ions in our dental polymers.

The Elemental technology inhibits bacterial & biofilm growth.

Zinc in Wound Healing Modulation: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5793244/?report=classic
Zinc in wound healing: theoretical, experimental, and clinical aspects: https://pubmed.ncbi.nlm.nih.gov/17244314/
A systematic review on antibacterial activity of zinc against Streptococcus mutans: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6128804/
Zinc in Infection & Inflammation: https://pubmed.ncbi.nlm.nih.gov/28629136/

Determination of antimicrobial activity.

Determination of Antimicrobial Activity against **Gram-Negative Bacteria**



Gram-negative bacteria development on untreated material

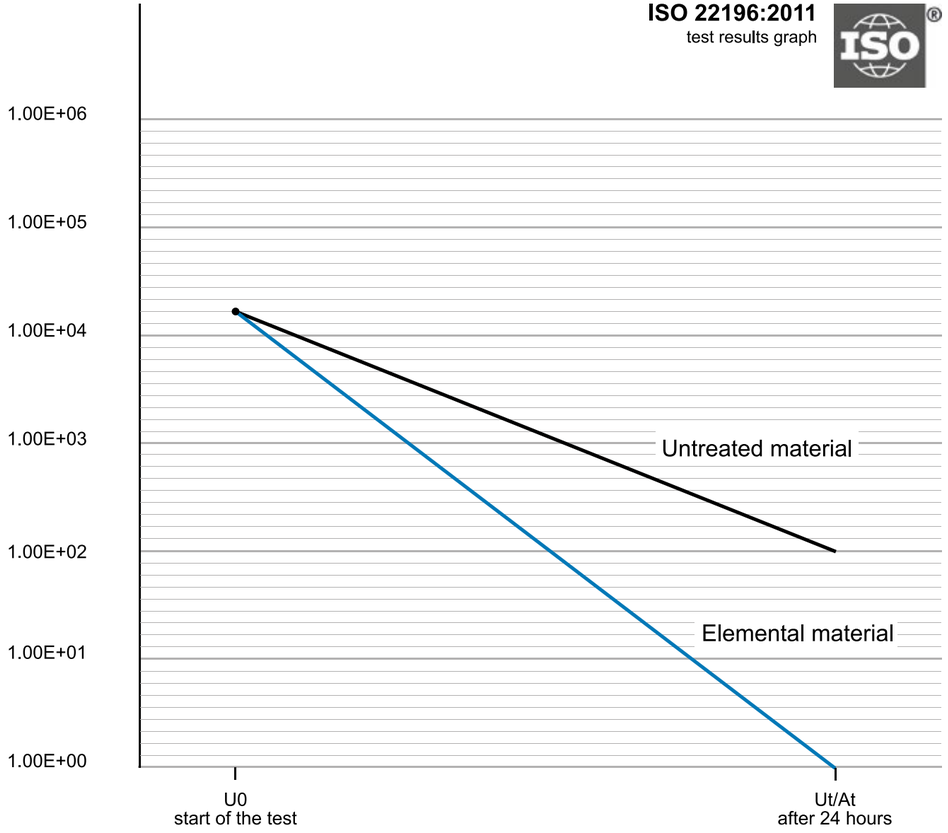
Gram-negative bacteria development on Elemental material

Determination of Antimicrobial Activity

Determination of antibacterial activity (R) = **3,3 log microbial growth reduction**

Determination of antibacterial activity (R) = **>99.9%**

Determination of Antimicrobial Activity against **Gram-Positive Bacteria**



Gram-positive bacteria development on untreated material

Gram-positive bacteria development on Elemental material

Determination of Antimicrobial Activity

Determination of antibacterial activity (R) = **>2,0 log microbial growth reduction**

Determination of antibacterial activity (R) = **>99%**

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APPLICATION

Socket seal in extraction socket management, alveolar ridge preservation techniques.

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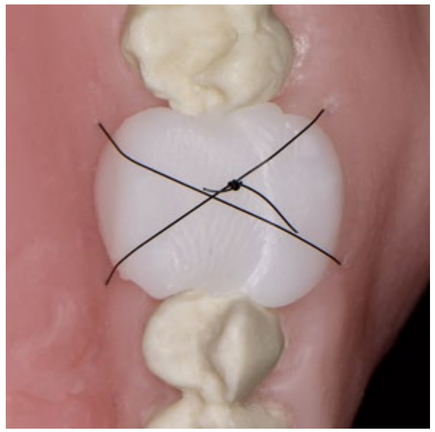
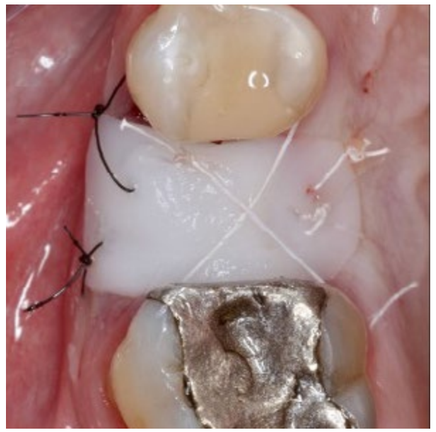
Socket seal
Techniques for retention

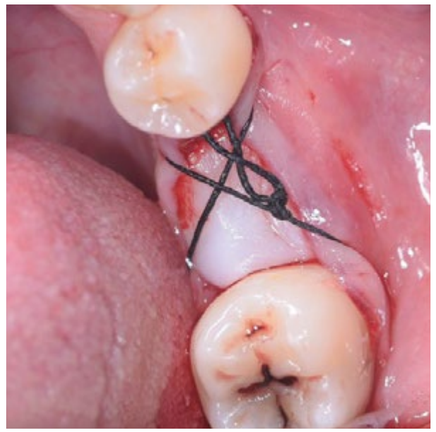
Sutured through the polymer after placement of bone substitute.



Crisscross sutured over the polymer + mechanical retention under the curvature of the adjacent teeth, after placement of bone substitute.



Combination of crisscross, through the polymer and mechanical retention under the curvature of the adjacent teeth, after placement of bone substitute.



Sutured over the polymer, after placement of PRF.

Mechanical retention on the adjacent teeth and tissue after placement of PRF.

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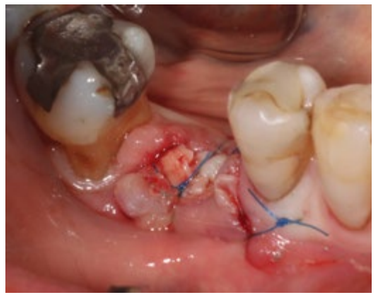
Socket seal
Healing results



Platelet-Rich Fibrin

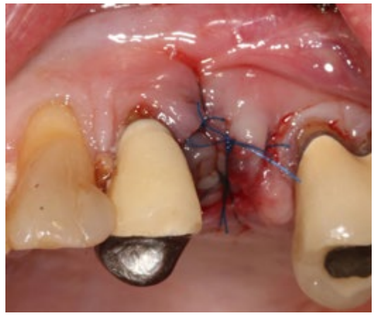
Elemental polymer dressing

7 days post-operative

Synthetic
bone substitute

Elemental
polymer dressing

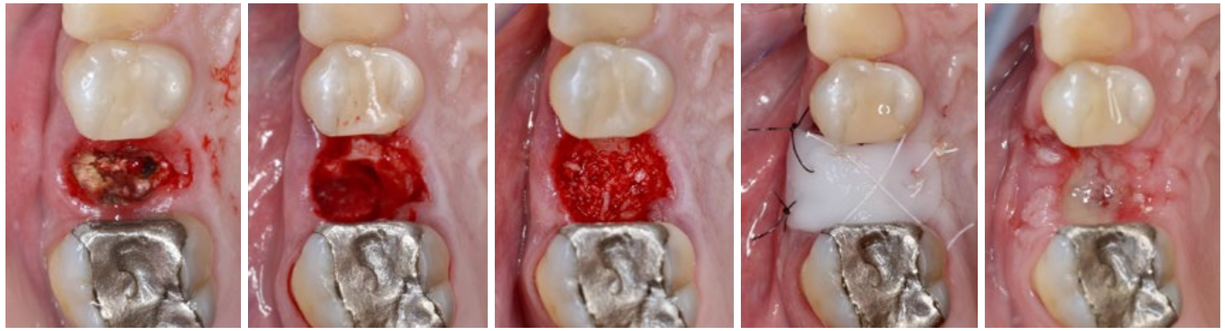
8 days
post-operative



Platelet-Rich Fibrin

Elemental polymer dressing

10 days post-operative



Allogenic
cancellous bone

Elemental
polymer dressing

3 days
post-operative

PRF
& Elemental polymer dressing

7 days post-operative

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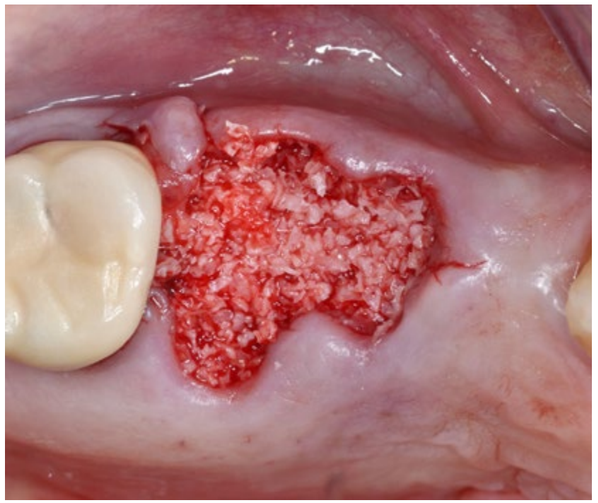
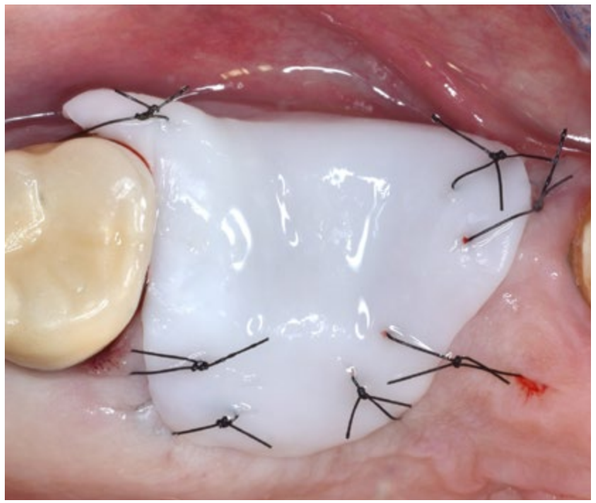
Dr. Minas Leventis

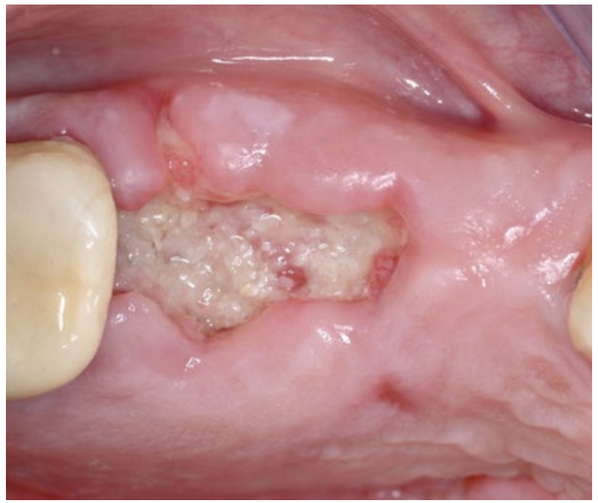
Product used: Elemental Granulate

Application

Elemental barrier for open healing socket grafting







Day of surgery

"No membrane, no sutures over the graft. Just the bone graft, protected by Elemental barrier."

"The Elemental polymer stayed in place the first 3 days. My plan was to remove it the 10th post-op day, but the patient had no pain at all so he decided to take scissors and removed by himself at home"

10 day follow-up

"10 days after the extraction and the socket grafting with cancellous allograft. All the graft is in place, fully covered, and embedded in newly-formed connective tissue. Already there is new epithelium proliferating from the periphery. No inflammation, no infection, no pain, no swelling."

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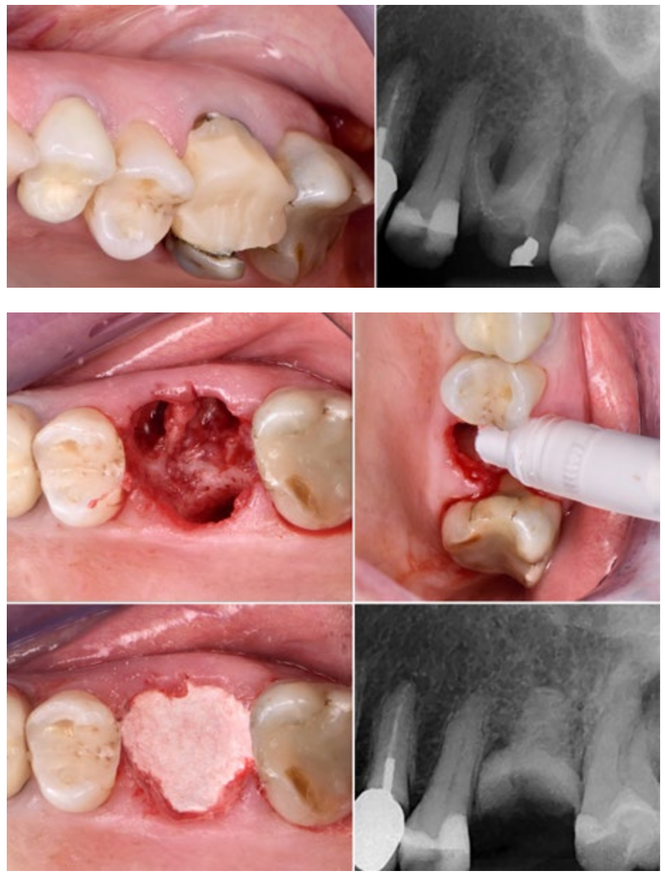
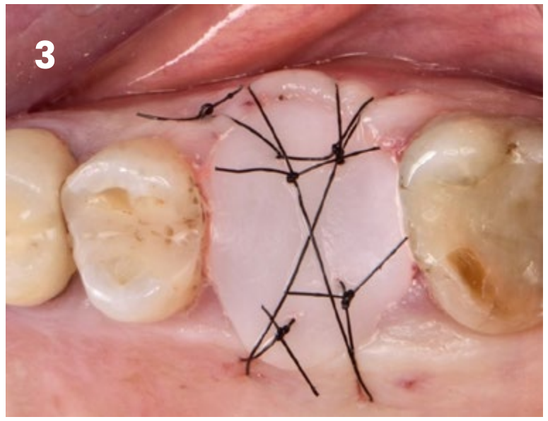
Dr. Minas Leventis

Product used: Elemental Granulate

Application

"Using Elemental Oral Surgical Granulate as a Novel Socket Barrier Concept" - Clinical report by Dr. Minas Leventis





The Elemental polymer dressing was placed over the grafted extraction site, and by applying gentle tactile pressure, it formed a barrier over the grafted socket (fig. 2), covering completely the underlying graft, and extending approximately three millimeters over the surrounding soft tissues. In a few seconds, polymer dressing had hardened in situ and a small number of sutures (SKD monofilament 5-0) were placed to stabilize it further (fig. 3).

Eight days post-op, the Elemental polymer barrier was removed (fig. 4), revealing excellent healing of the area, with no signs of infection, tissue collapse or loss of the graft. The grafted socket was already covered completely by newly-formed uninflamed connective tissue, which proliferated rapidly over the protected bone substitute.

Read full clinical report

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Dr. Minas Leventis

Product used: Elemental Granulate

Application

Using Elemental Oral Surgical Granulate as a Novel Socket Barrier Concept

Allogenic cancellous bone

Elemental polymer dressing

3 days post-operative

“Here is a socket graft case where I left the Elemental polymer dressing only for 3 days post-op. Not an easy extraction, there was a small bone dehiscence buccally. I used only allogenic cancellous bone for grafting, no membranes. The major benefit is that in just 3 days the site is covered by connective tissue and we secure the graft in place. I don’t think that there is any need to keep the polymer any longer.”

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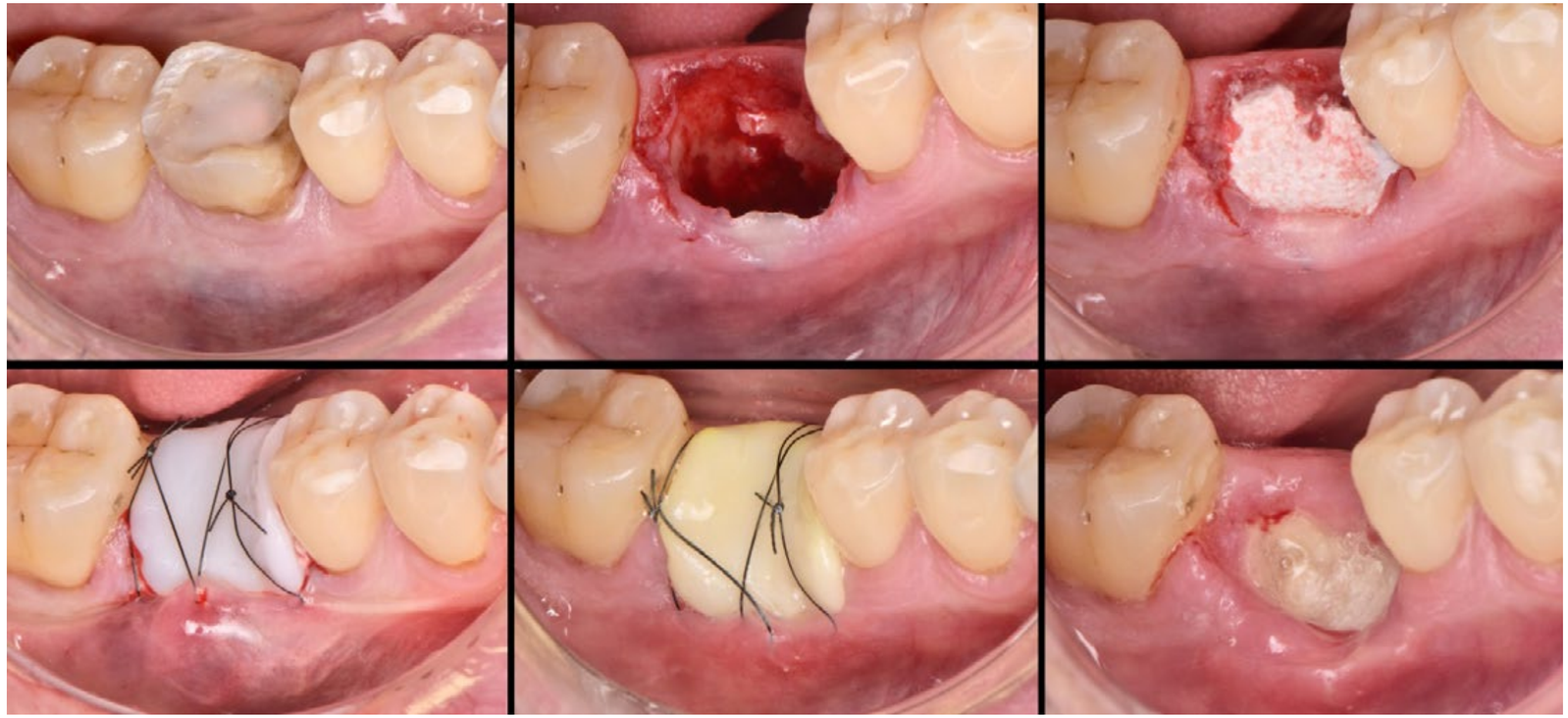
Dr. Minas Leventis

Product used: Elemental Granulate

Application

Using Elemental Oral Surgical Granulate as a Novel Socket Barrier Concept



"Here I left the Elemental 6 days. Very difficult extraction as the roots were ankylosed, I managed to remove it without raising a flap, no septal bone and defective buccal plate.

Grafted with 0.5 cc synthetic silicate b-TCP, no collagen on top, no membrane, no flap to cover it. I stabilised the elemental with two criss cross 5-0 sutures and removed it after 6 days. Even without the stitches it was nicely stable and blocked between the adjacent teeth. The patient had no pain, no swelling, no discomfort, just the area was slightly tender the first days. Excellent result considering it was not an easy extraction.

In my opinion the outcome in this case and clinical scenario is excellent and the polymer fulfilled it's role perfectly: It protected the graft and improved the open healing of the site. So there was no graft loss, which is the main issue, and in 6 days we can observe clinically that the graft is embedded into a rich fibrin network and which is already getting covered by healthy granulation tissue and new epithelium, migrating from the margins of the socket. I believe that the graft is now safe and stable, and the area will heal perfectly by secondary intention, without the need for the polymer anymore.

In conclusion, I believe that the Elemental played a crucial role during the first days of healing of the grafted socket, and this first stage of healing is the most important."

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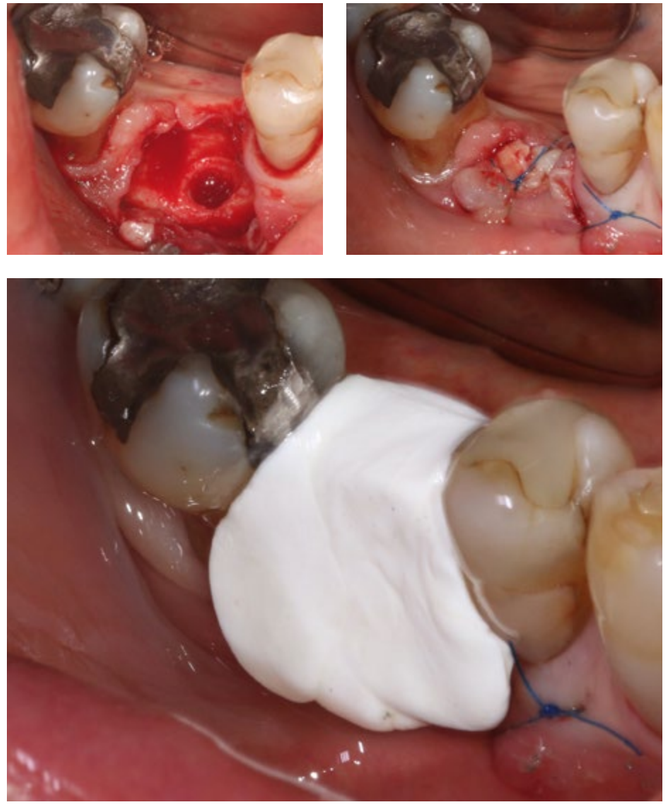
Dr. Kenneth Van Stralen

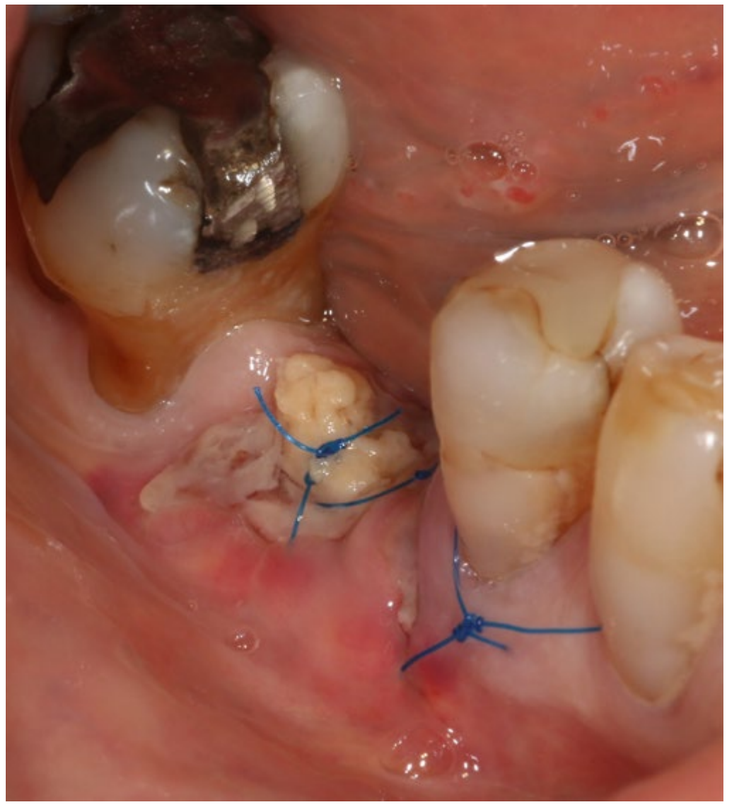
Product used: Elemental Granulate

Application

Coverage of the extraction socket after explant and placement of PRF



Day of surgery



4 days post-operative

10 days post-operative

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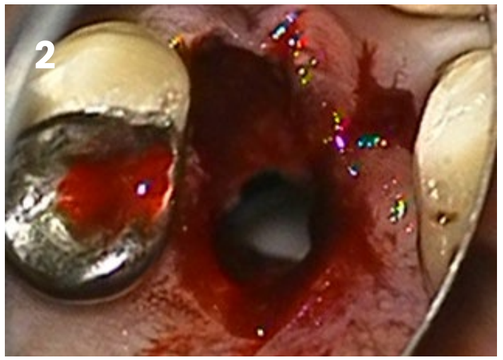
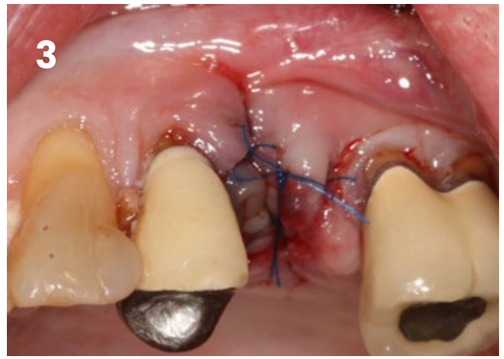
Dr. Kenneth Van Stralen

Product used: Elemental Granulate

Application

Sealing of the extraction socket after PRF placement



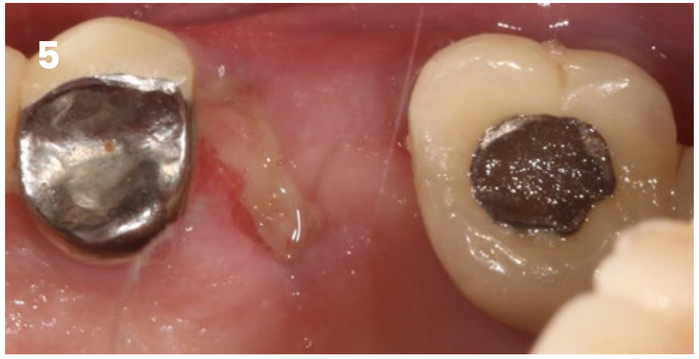


Day of surgery

Fig 1: pre-operative, Fig 2: perforation, Fig. 3: placement of PRF, Fig. 4:. coverage with Elemental

7 days post-operative

Removal of Elemental



10 days, 16 days post-operative

10 days post-op (fig. 5), 16 days post-op (fig. 6)

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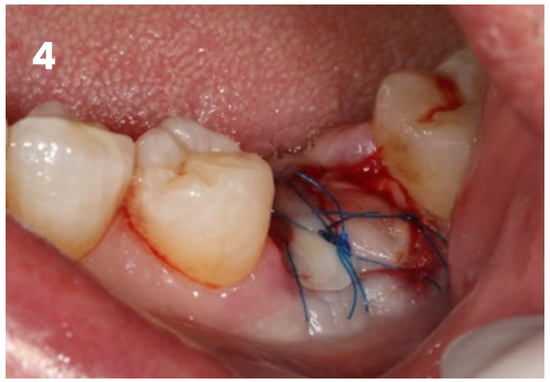
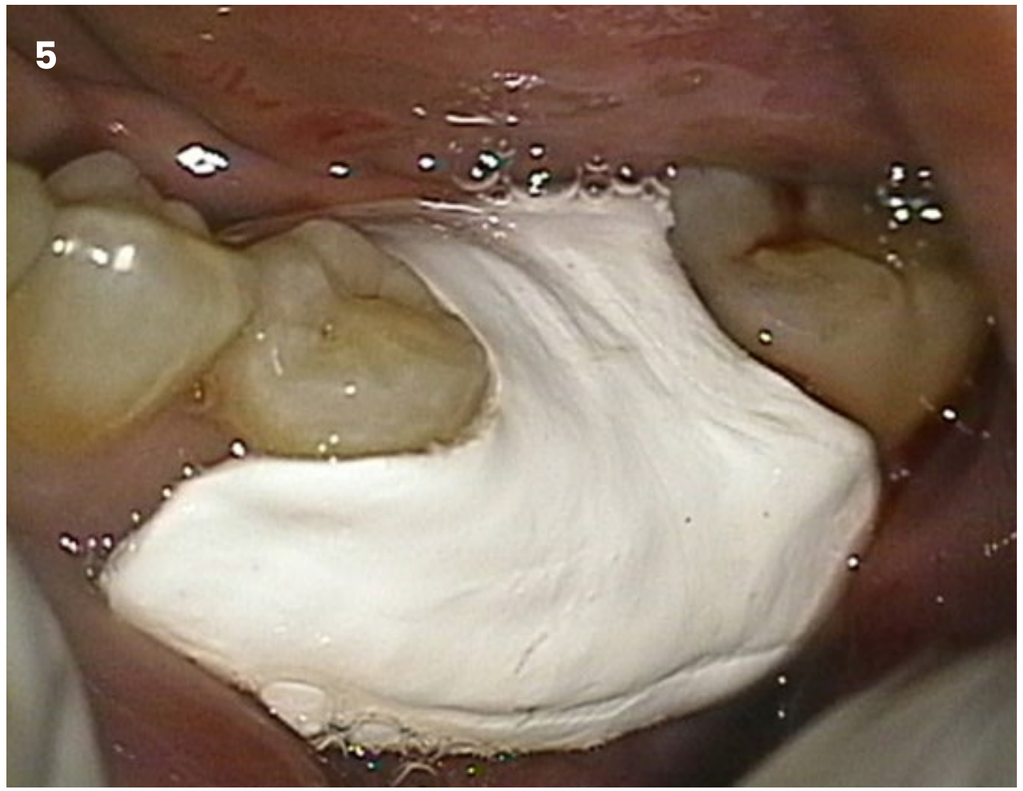
Dr. Kenneth Van Stralen

Product used: Elemental Granulate

Application

Sealing of the extraction socket after PRF placement





Day of surgery

Fig. 1: pre-operative view, Fig. 2: x-ray, Fig. 3: extraction, Fig. 4: PRF placed and sutured, Fig. 5: Elemental barrier placed.

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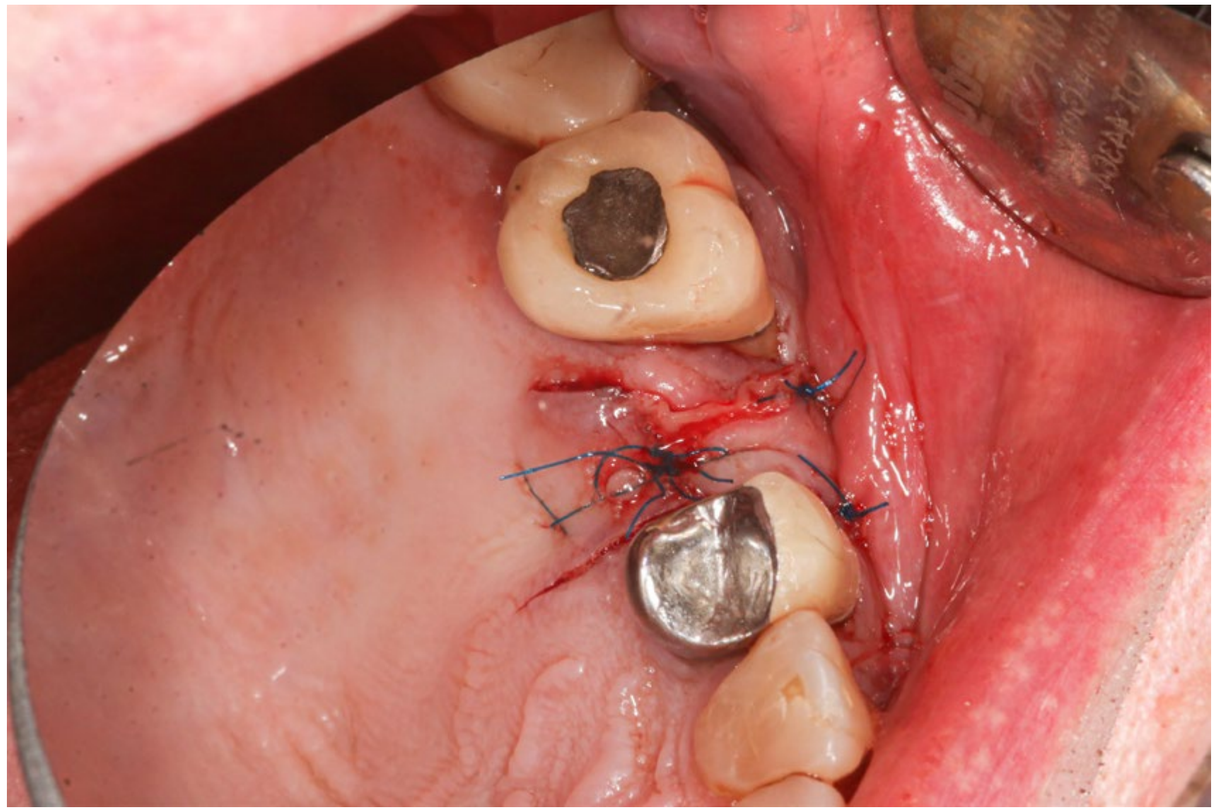
Dr. Kenneth Van Stralen

Product used: Elemental Granulate

Application

Sealing of the extraction socket after PRF placement



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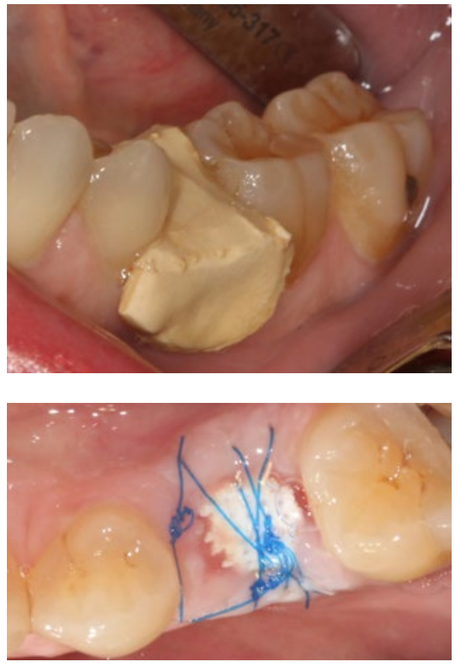
Dr. Kenneth Van Stralen

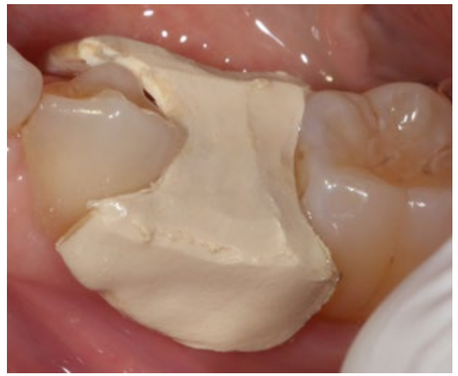
Product used: Elemental Granulate

Application

Sealing of the extraction socket with membrane



4 days post-operative



3 weeks post-operative

4 weeks post-operative

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Dr. Kenneth Van Stralen

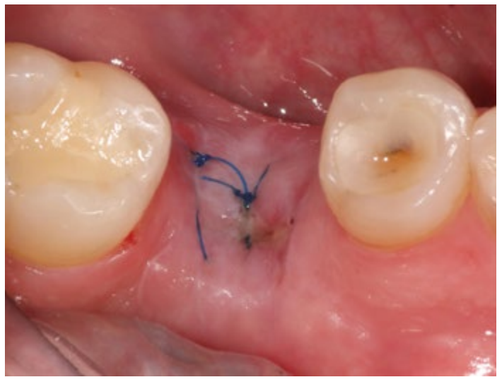
Product used: Elemental Granulate

Application

Sealing of extraction site before implant placement




Day of surgery


9 days post-operative

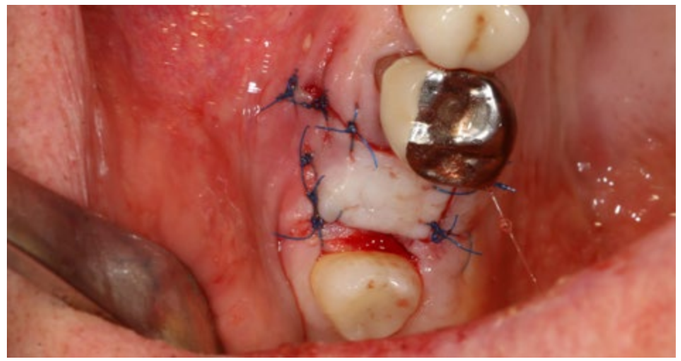
elemental®

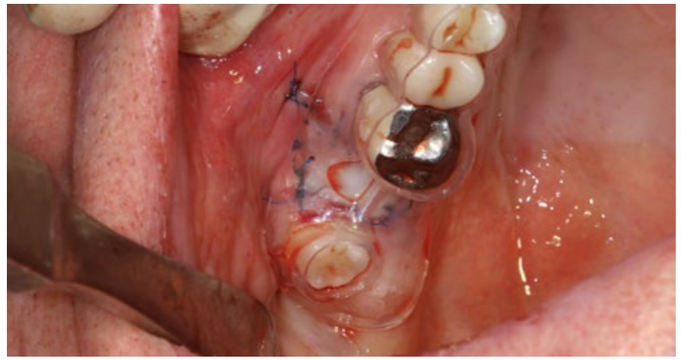
Dr. Kenneth Van Stralen

Product used: Elemental Blanks

Application

Coverage of implant site





Day of surgery

5 days post-operative

4 weeks post-operative

8 weeks post-operative

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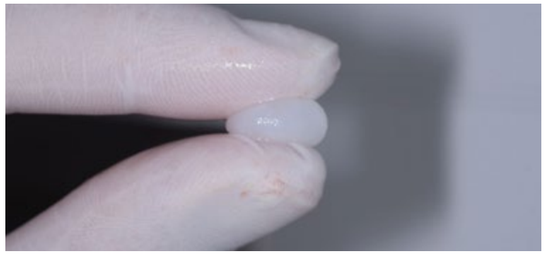
Dr. Cleopatra Nacoupulos

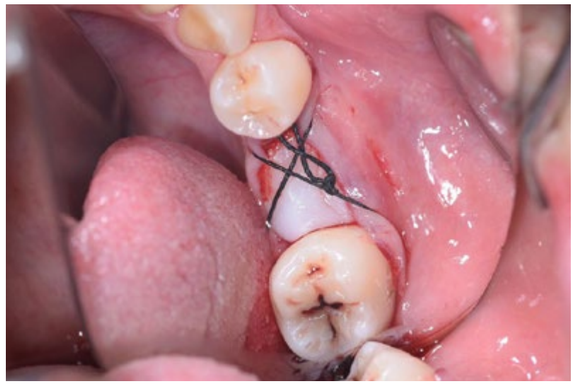
Product used: Elemental Granulate

Application

Sealing of extraction site after PRF placement



Day of surgery



1 week post-operative

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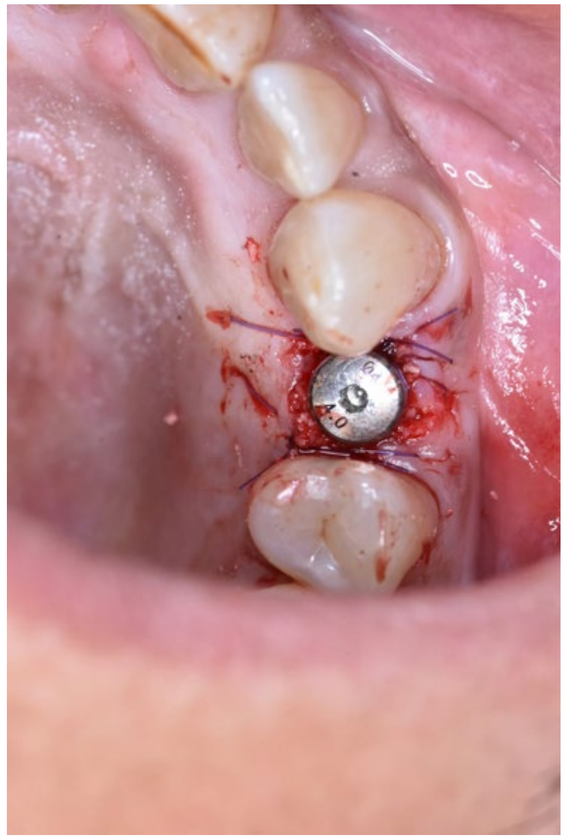
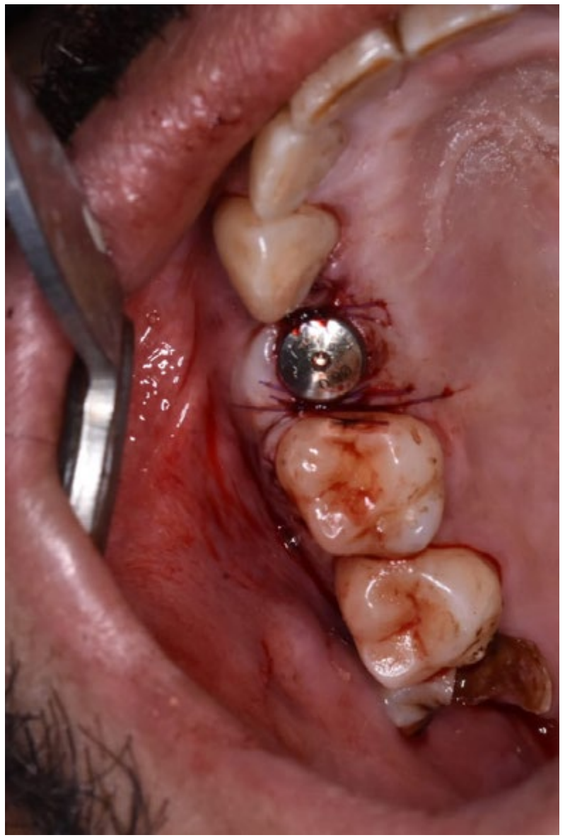
Dr. Mohammed El Farouki

Product used: Elemental Granulate

Application

Antibacterial coverage of implant sites





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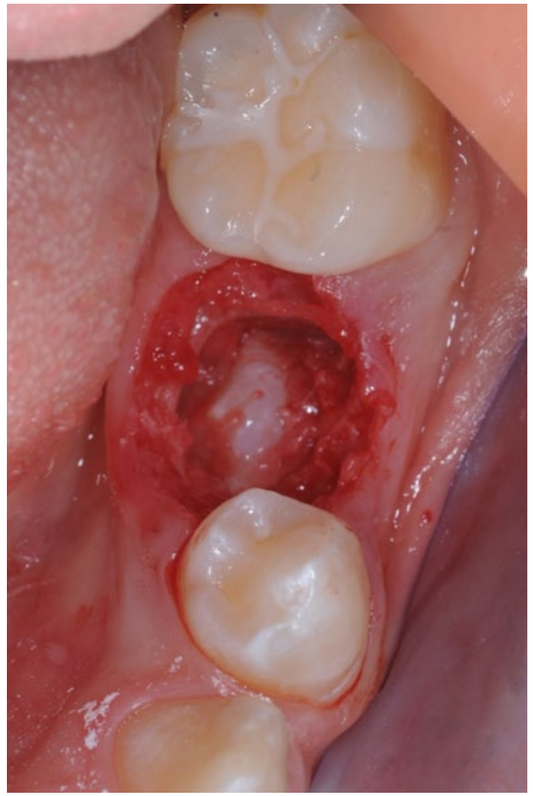
Dr. Cristiano Caleffi

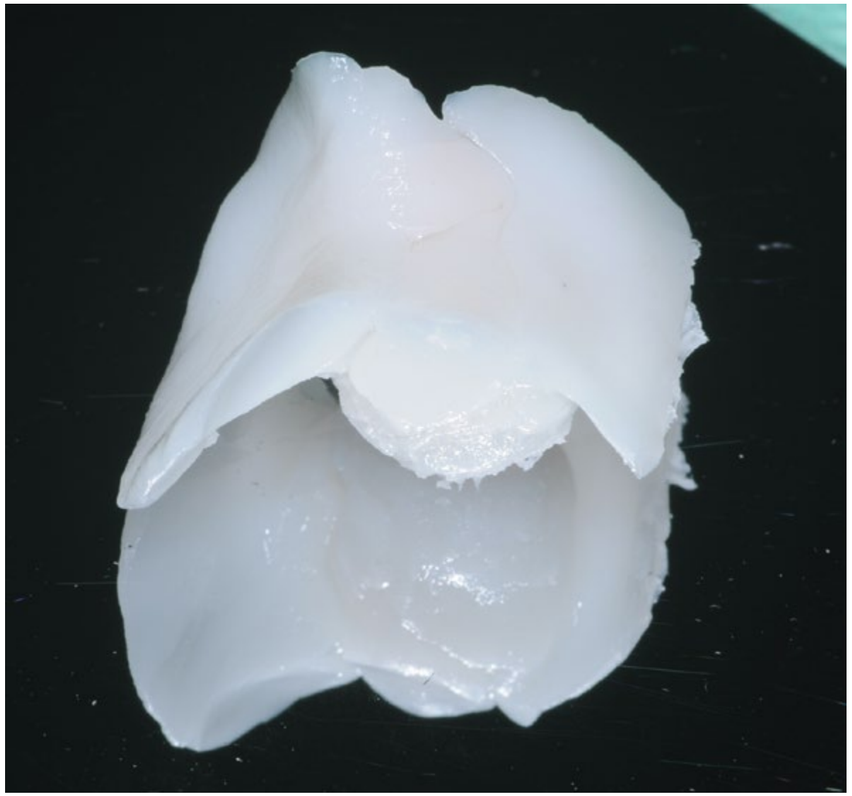
Product used: Elemental Granulate

Application

Sealing of the extraction socket



1. Extraction



2. Creating socket seal with Elemental granulate

3. Placement of socket seal to protect extraction socket

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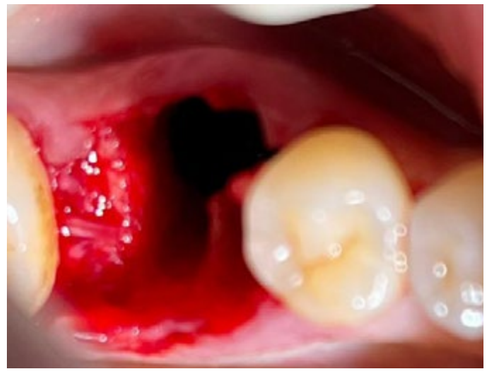
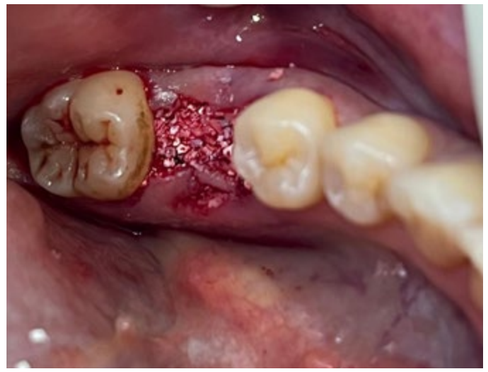
Dr. Yasmina Miss

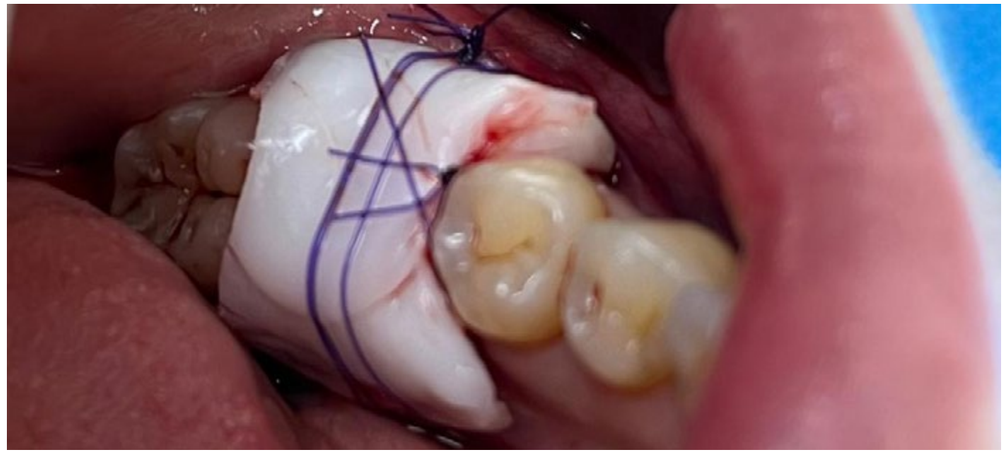
Product used: Elemental Granulate

Application

Sealing of the extraction socket after bone grafting







Day of surgery

1. extraction, 2. grafting the extraction socket, 3. sealing the socket with Elemental granulate.

7 days post-operative

Grafted socket covered by newly-formed connective tissue.

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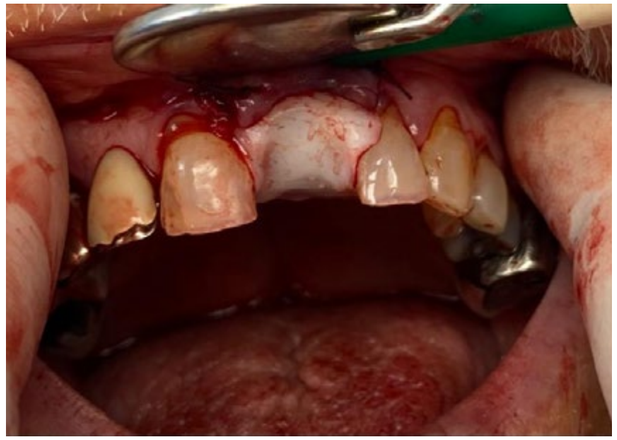
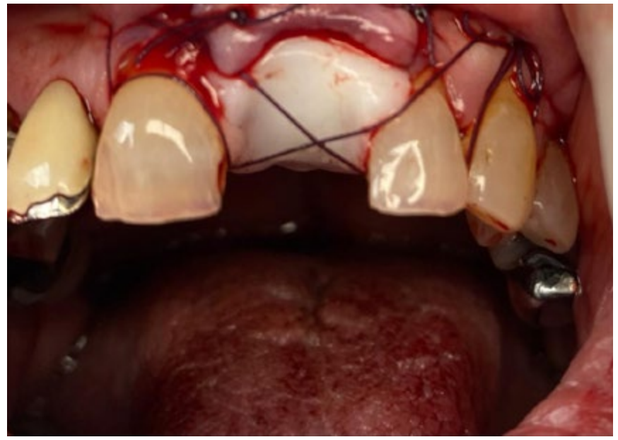
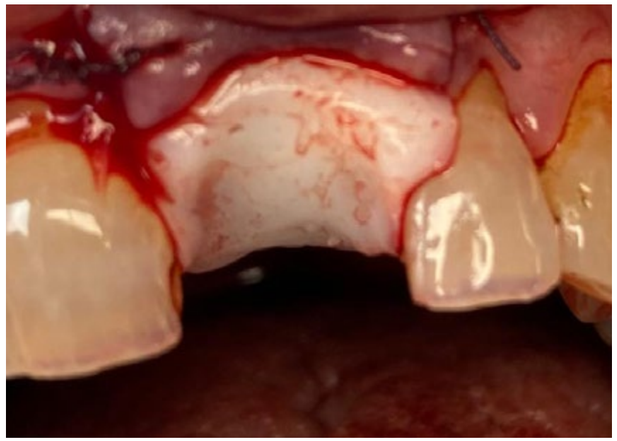
Dr. Pierre Michel Le Prado

Product used: Elemental Granulate

Application

Sealing of the extraction socket, temporary prosthesis on top

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Dr. Marcus Engelschalk

Product used: Elemental Granulate

Application

Sealing of the extraction socket

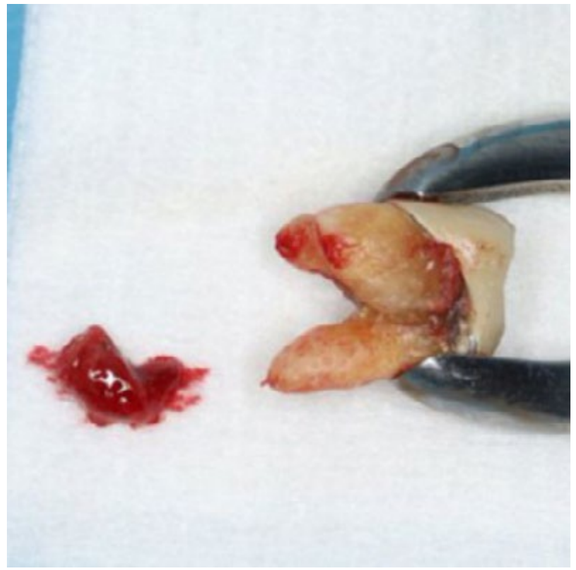
elemental®

Dr. Stuart Kilner

Product used: Elemental Granulate

Application

Sealing of the extraction socket after bone grafting



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Dr. Stuart Kilner

Product used: Elemental Granulate

Application

Sealing of the extraction socket

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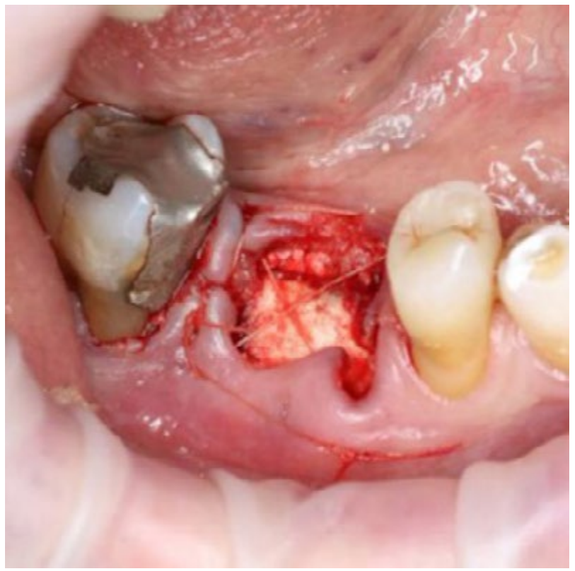
Dr. Stuart Kilner

Product used: Elemental Granulate

Application

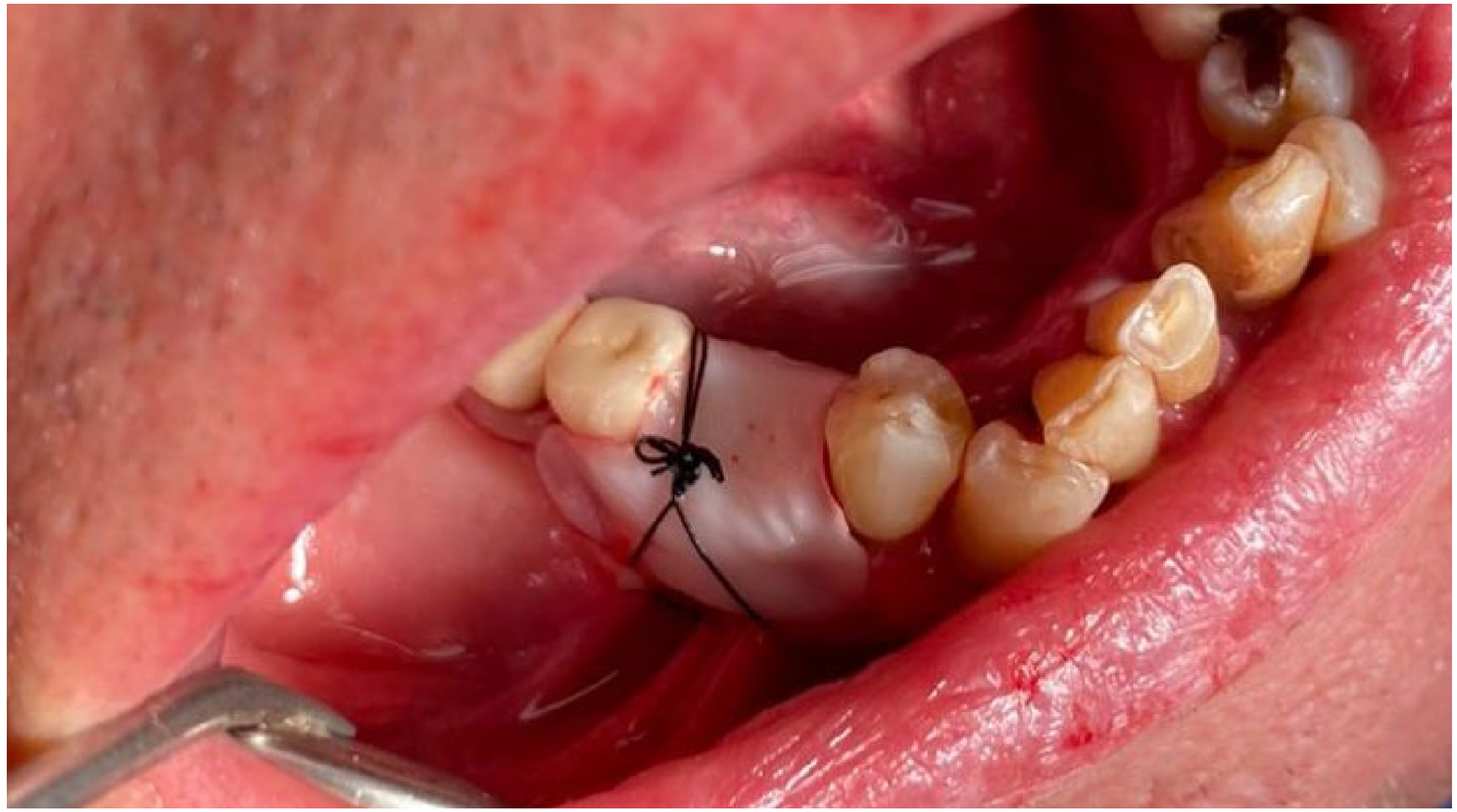
Sealing of the extraction socket



Dr. Alexandre Rovisco

Application

Sealing of the extraction socket



elemental®

Dr. Alexandre Rovisco

Product used: Elemental Granulate

Application

Sealing of the extraction socket

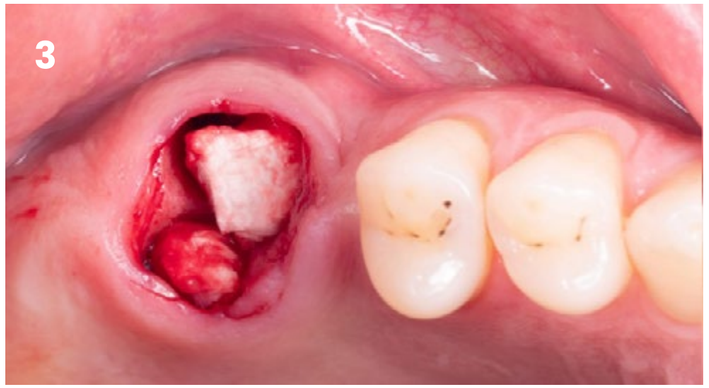
elemental®

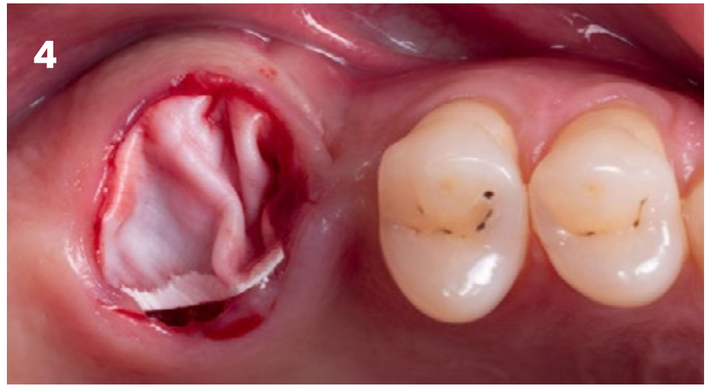
Dr. Federico Mandelli

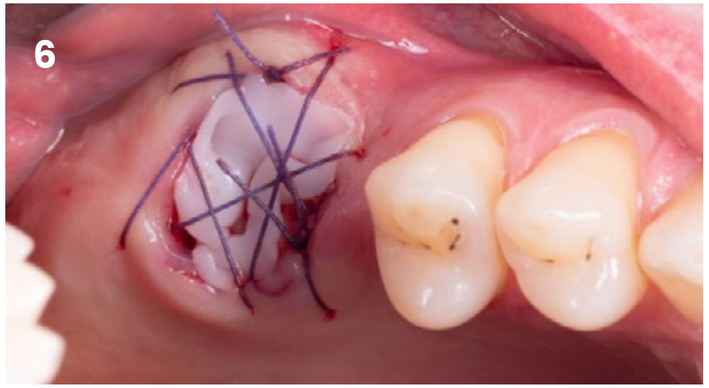
Product used: Elemental Granulate

Application

Sealing of the extraction socket







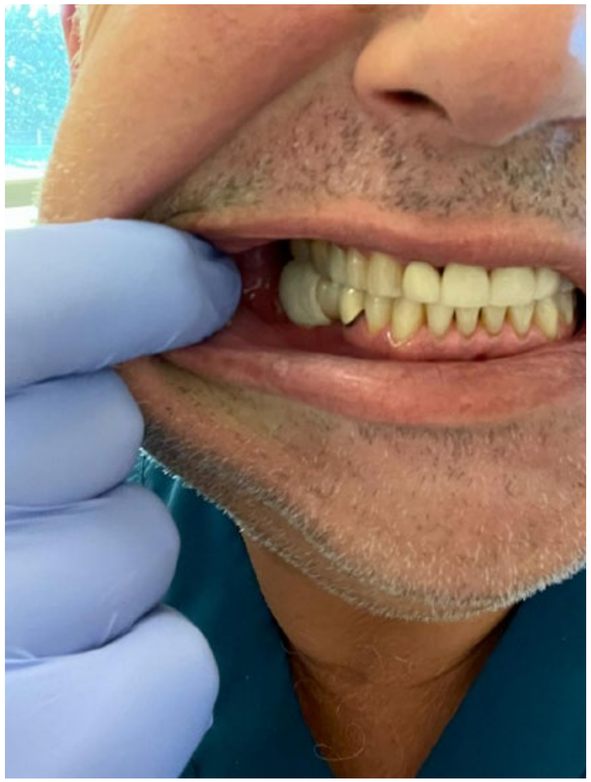
elemental®

Dr. Ira Reiz

Product used: Elemental Granulate

Application

Sealing of the extraction socket



Day of surgery

“Yesterday I extracted my 47 (31), I curetted the site, irrigated and placed zenoss bone plug.
1 suture and Elemental granulate. I feel great, I brushed and rinsed.”

5 days post-operative

“I removed the material, the site is beautiful, I’m great, no pain.”

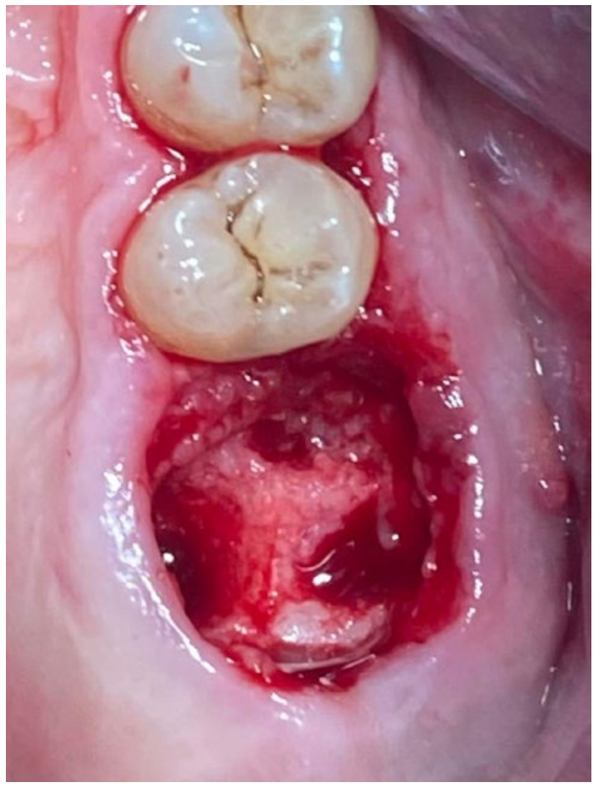
elemental®

Dr. Koromantzos

Product used: Elemental Granulate

Application

Sealing of the extraction socket

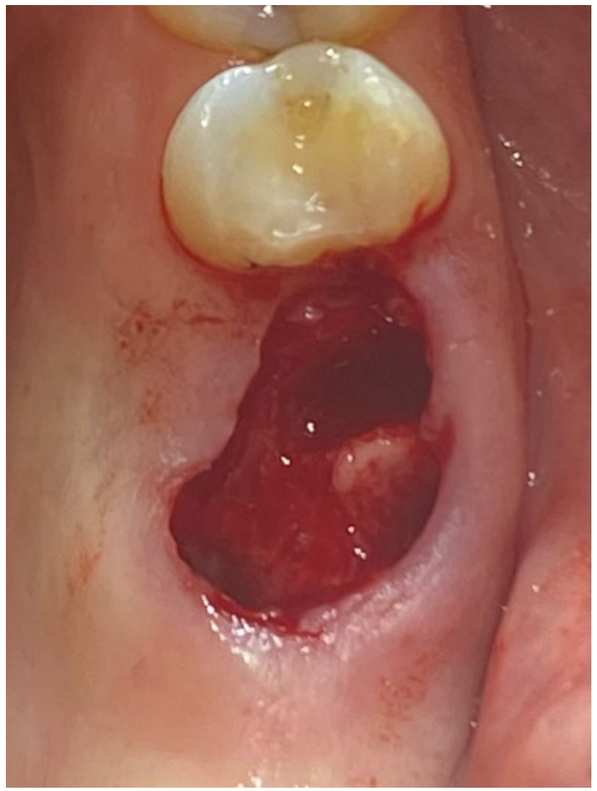
elemental®

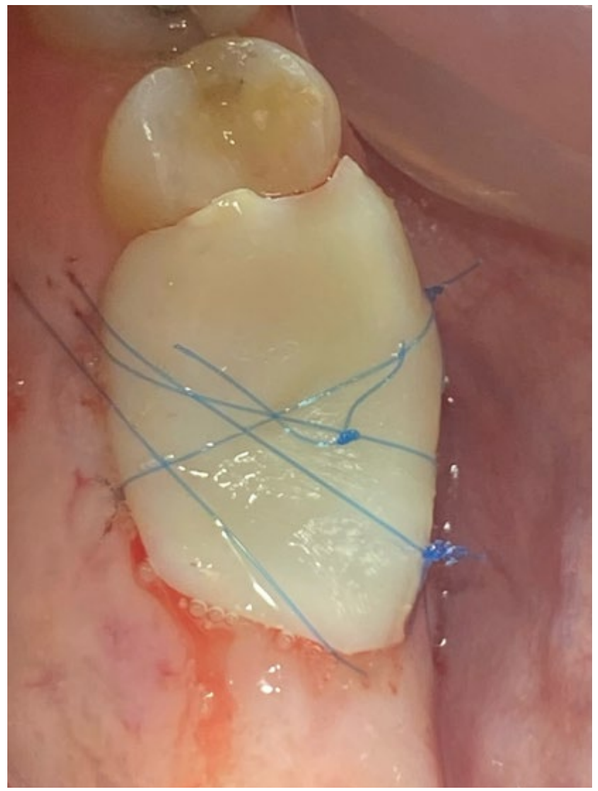
Dr. Koromantzos

Product used: Elemental Granulate

Application

Sealing of the extraction socket



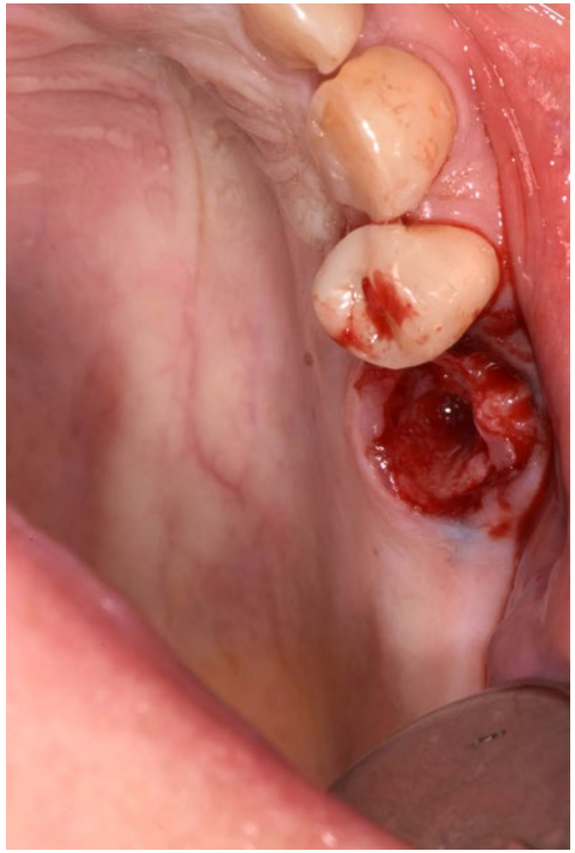
elemental®

Prof. Wim Teughels

Product used: Elemental Granulate

Application

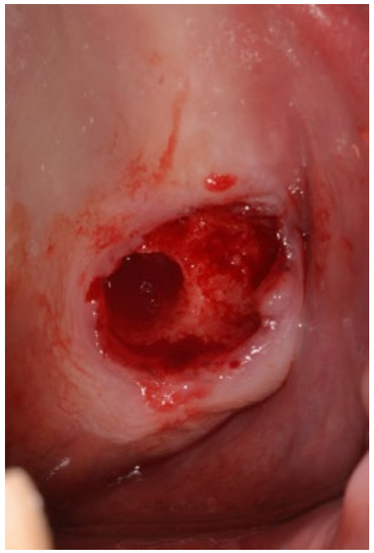
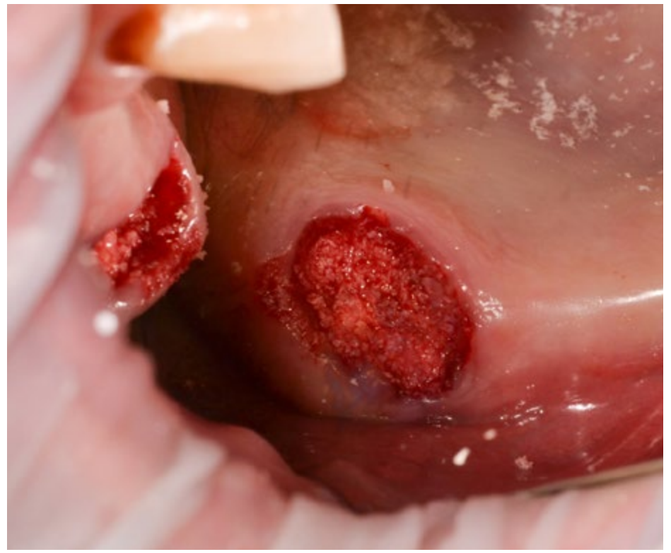
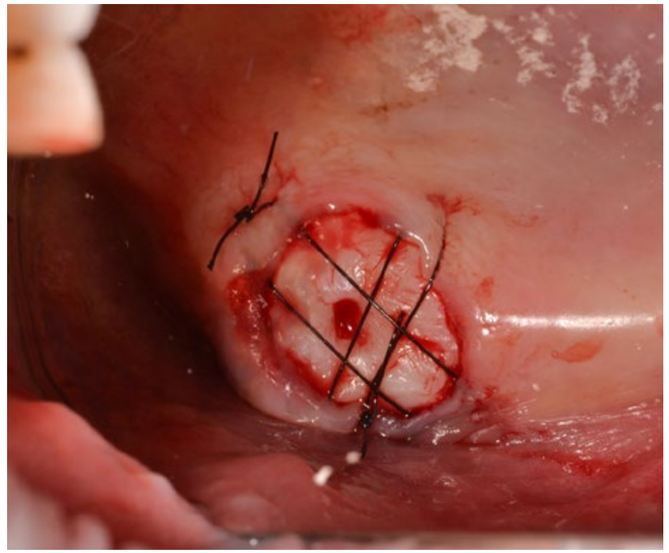
Sealing of the extraction socket



Elemental seal with composite fixation instead of mechanical retention.

Application

Sealing of extraction socket after bone grafting

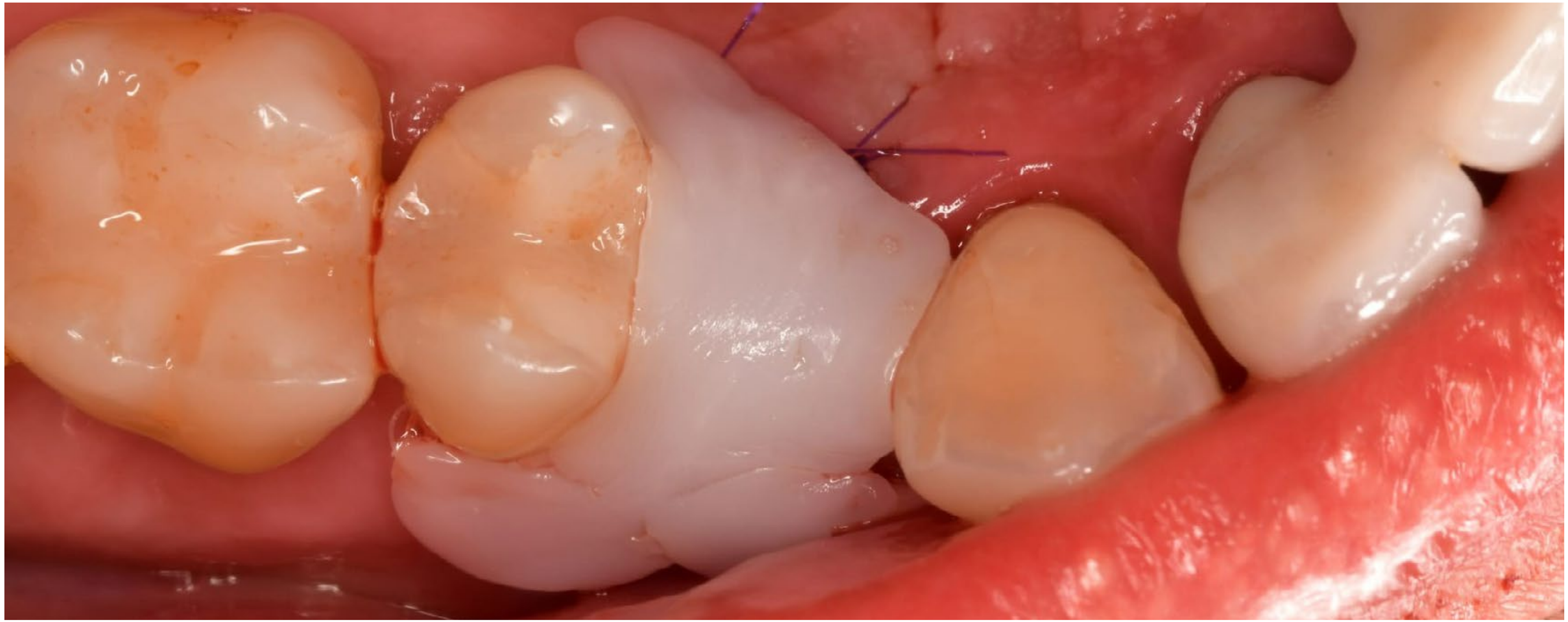
elemental®

Dr. Eleonora Solyom

Product used: Elemental Granulate

Application

Sealing of the extraction socket after PRF placement



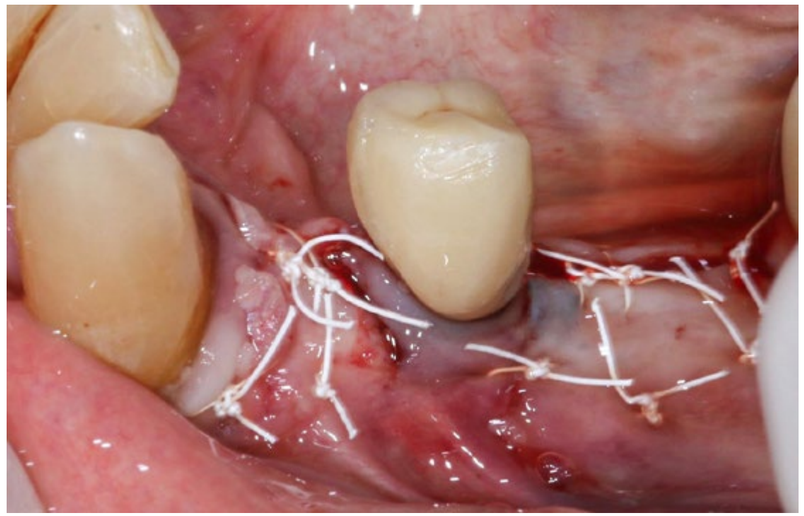
elemental®

Dr. Kenneth Van Stralen

Product used: Elemental Granulate

Application

Elemental as adjunct to soft tissue healing after PRF placement



APPLICATION

Palatal stent on donor site after soft tissue harvesting techniques.

elemental®

Palatal stent
Techniques for retention

Partial palatalstent, interproximal mechanical retention.
With haemostatic agent sutured on the donor site.

Full palatal stent, interproximal mechanical retention.
No haemostatic agent or suturing on the donor site.

Partial palatal stent, combination of mechanical interproximal retention + retention on occlusal & buccal surface of molars. No haemostatic agent or suturing on the donor site.

Full palatal stent, mechanical retention over incisal edges and on occlusal surface. No haemostatic agent or suturing on the donor site.

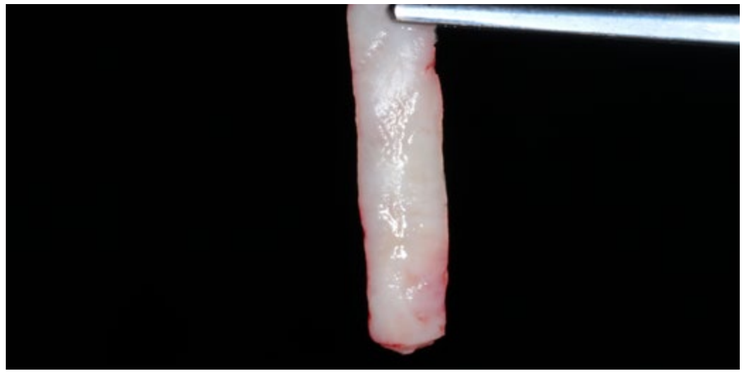
elemental®

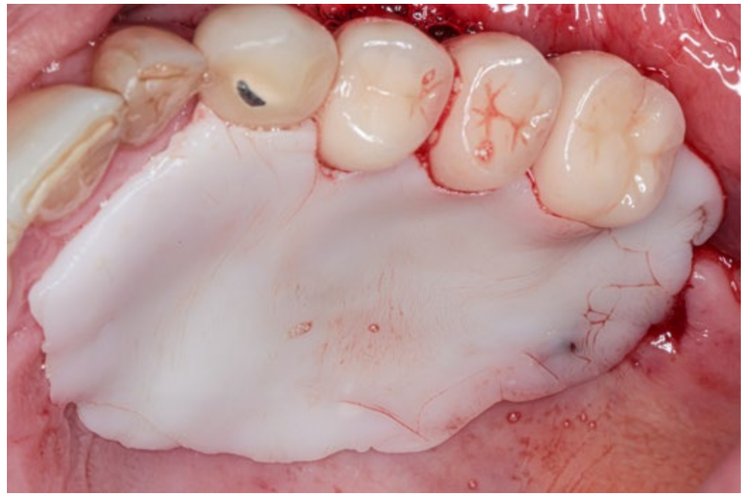
Dr. Bernardo Passoni

Product used: Elemental Granulate

Application

Palatal stent on donor site after soft tissue grafting





Day of surgery

Follow-up

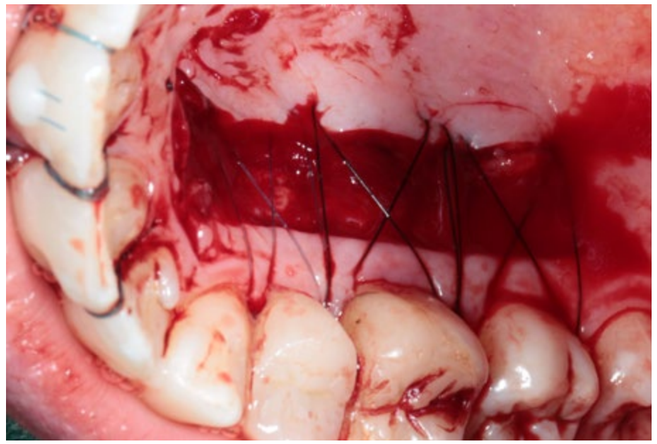
elemental®

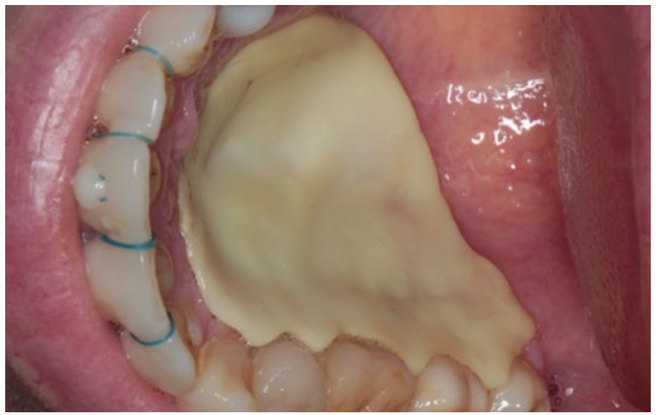
Dr. Bernardo Passoni

Product used: Elemental Granulate

Application

Palatal stent on donor site after soft tissue grafting





Day of surgery

Follow-up

elemental®

Dr. Bo Molemans

Product used: Elemental Granulate

Application

Palatal stent on donor site after soft tissue grafting

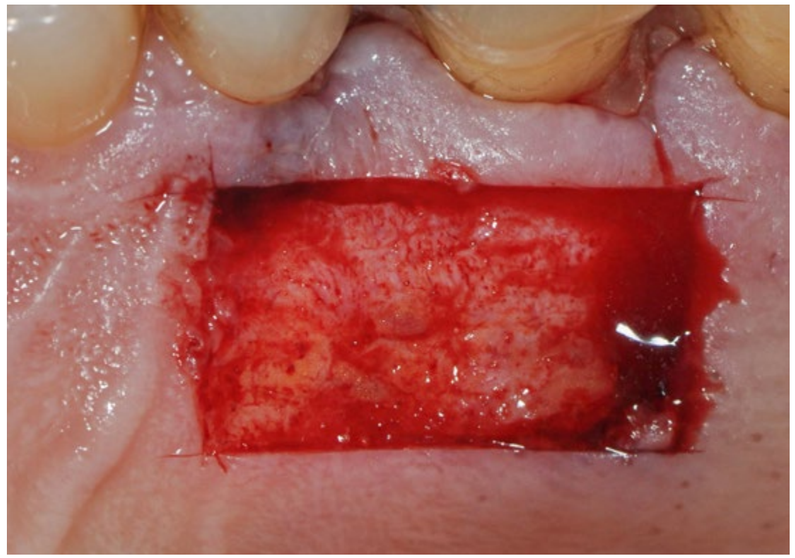
elemental®

Dr. Rutger Dhondt

Product used: Elemental Granulate

Application

Palatal stent on donor site after soft tissue grafting



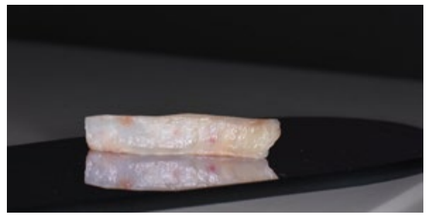
elemental®

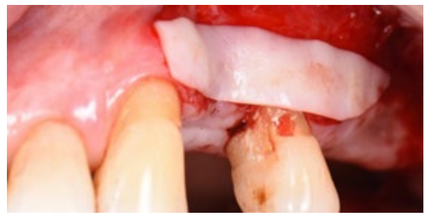
Dr. Alexander De Greef

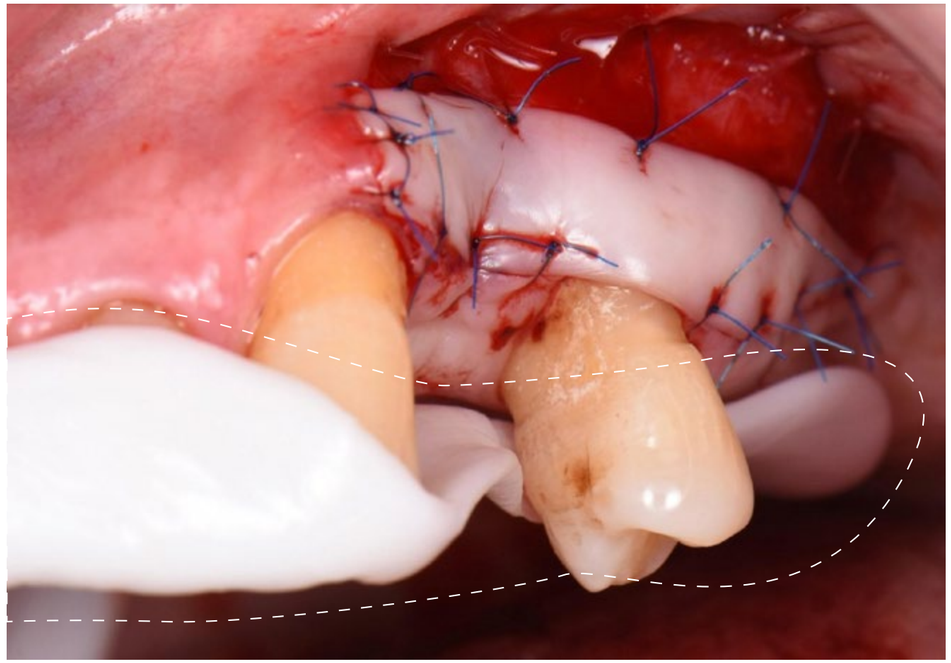
Product used: Elemental Granulate

Application

Palatal stent on donor site after soft tissue grafting

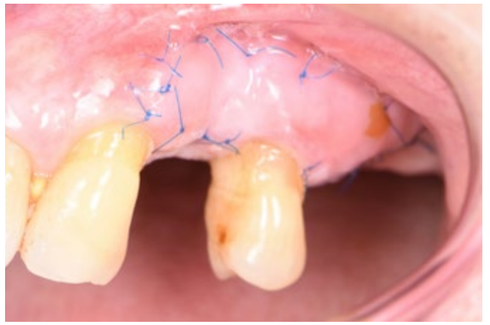






Day of surgery

"Preparation of recepient site, incision at mucogingival border. Apically displaced flap, removal of muscle tissue. Sutured apically with serafast 6-0. Harvesting donor site: Q2, no sutures used, Elemental granulate only. Adaptation FGG. Sutured FGG at the level of receptor site with Seralene 6-0. At the level of the recipient site, I made the stent go behind the tooth so that the stent would not get in the way of the sutures. This way, I also avoided the patient touching the graft in case he wanted to take out the stent."



10 days post-operative

"10 days post-op after Free Gingival Graft at the level of implant site 24 and element 25. Phenotype modification. Patient barely took out the stent for 10 days (see discoloration of material). Furthermore, patient reported no post-operative pain."

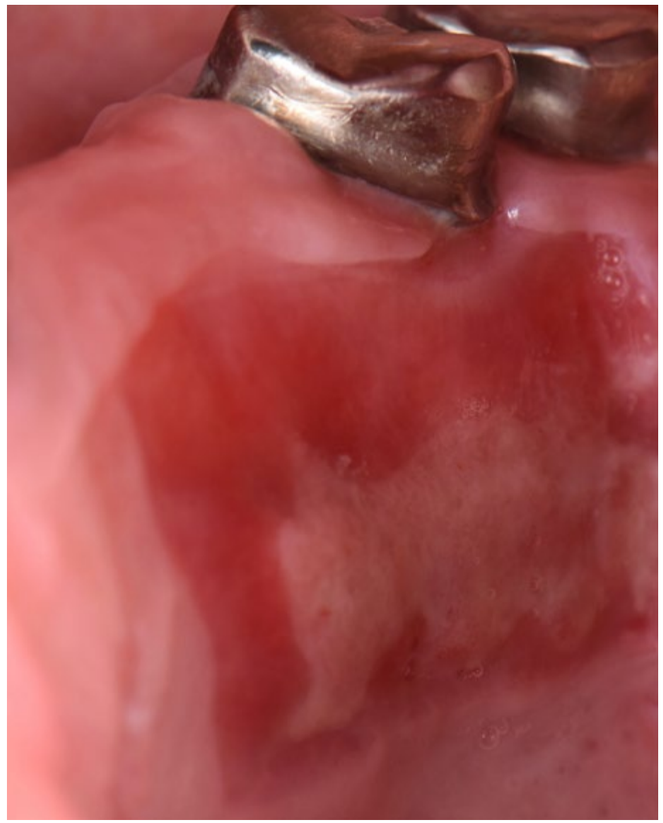
elemental®

Dr. Alexander De Greef

Product used: Elemental Granulate

Application

Adaptive prosthesis as donor site stent



Day of surgery

Using the Elemental granulate, Dr. De Greef made an extension of the patient's prosthesis, creating an adaptive prosthesis. This way, the patient could keep on wearning her prosthesis while covering the donor site wound with the granulate material. The extension was made in such a way that the patient could remove it herself after the recommended 7 days.

7 days post-operative

Healing of the donor site, no post-operative pain reported by the patient.

elemental®

Dr. Alexander De Greef

Product used: Elemental Granulate

Application

Palatal stent on donor site after soft tissue grafting

Day of surgery

Free Gingival Graft, chairside fabrication of the stent, placement and hardening in situ.

3 days post-operative

Healing of the donor site, no post-operative pain reported.

10 days post-operative

Healing of the donor site, no post-operative pain reported.

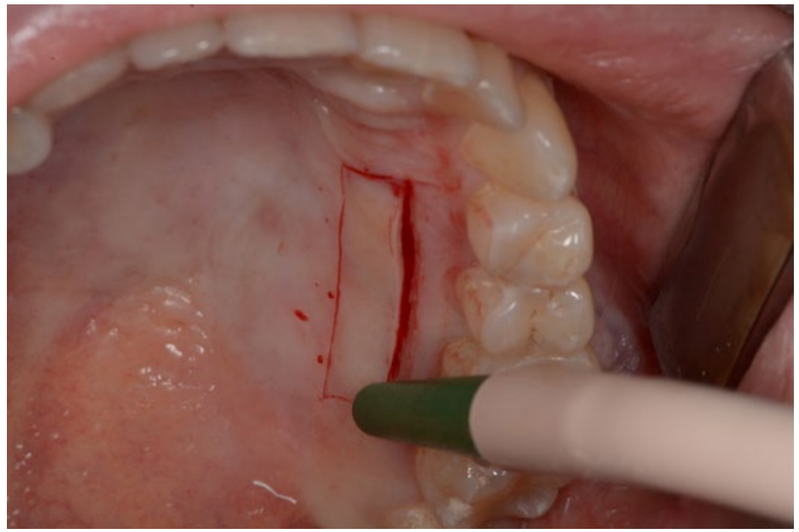
elemental®

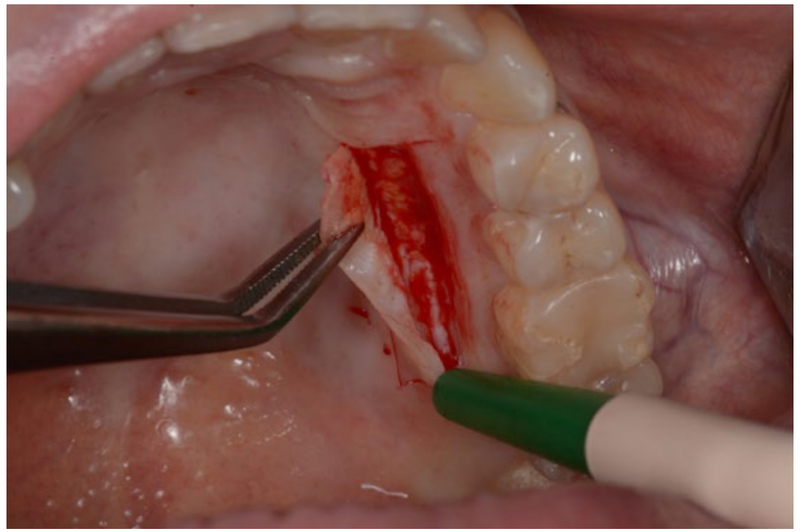
Dr. Violeta Claus

Product used: Elemental Granulate

Application

Palatal stent on donor site after soft tissue grafting





elemental®

Dr. Yin Hui

Product used: Elemental Granulate

Application

Palatal stent on donor site after soft tissue grafting

Day of surgery

1 month post-operative

"What surprised me was the retention of the polymer on the palate. It actually stayed on until the 3rd day when my patient decided to remove it herself due to the pressure on the wound.

The good thing about this polymer stent is that it really helps with haemostasis and it can be made easily chairside. The only problem, according to my patient, is it shouldn't be worn for more than 2 days as it gets uncomfortable with post-op oedema.

Is it something I would use in the clinic? Definitely for mucogingival procedures as it saves the trouble of making an acrylic plate."

elemental®

Dr. Delia Irani

Product used: Elemental Granulate

Application

Palatal stent on donor site after soft tissue grafting

Dr. Kenneth Van Stralen

Product used: Elemental Granulate

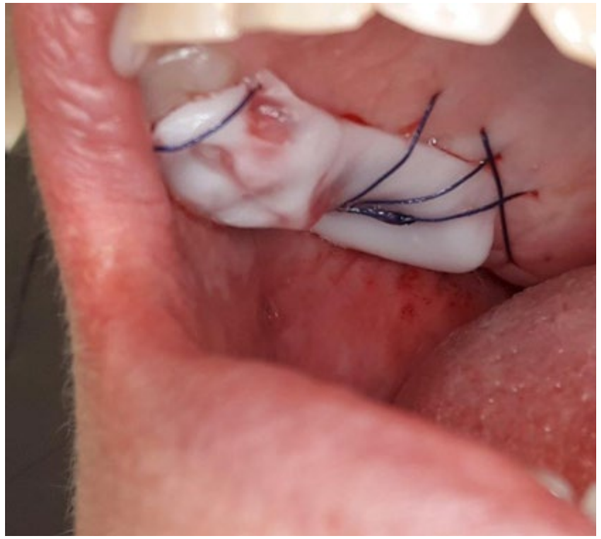
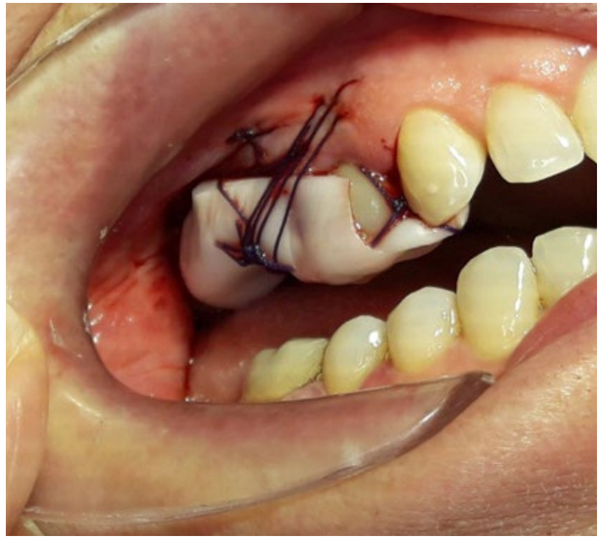
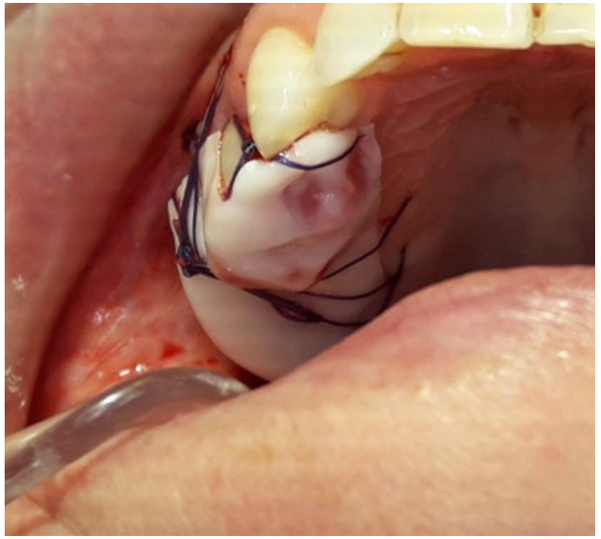
Application

Palatal stent on donor site after soft tissue grafting

elemental®

Dr. Peter Brabant

Product used: Elemental Granulate

APPLICATION

Antibacterial wound barrier on surgical sites

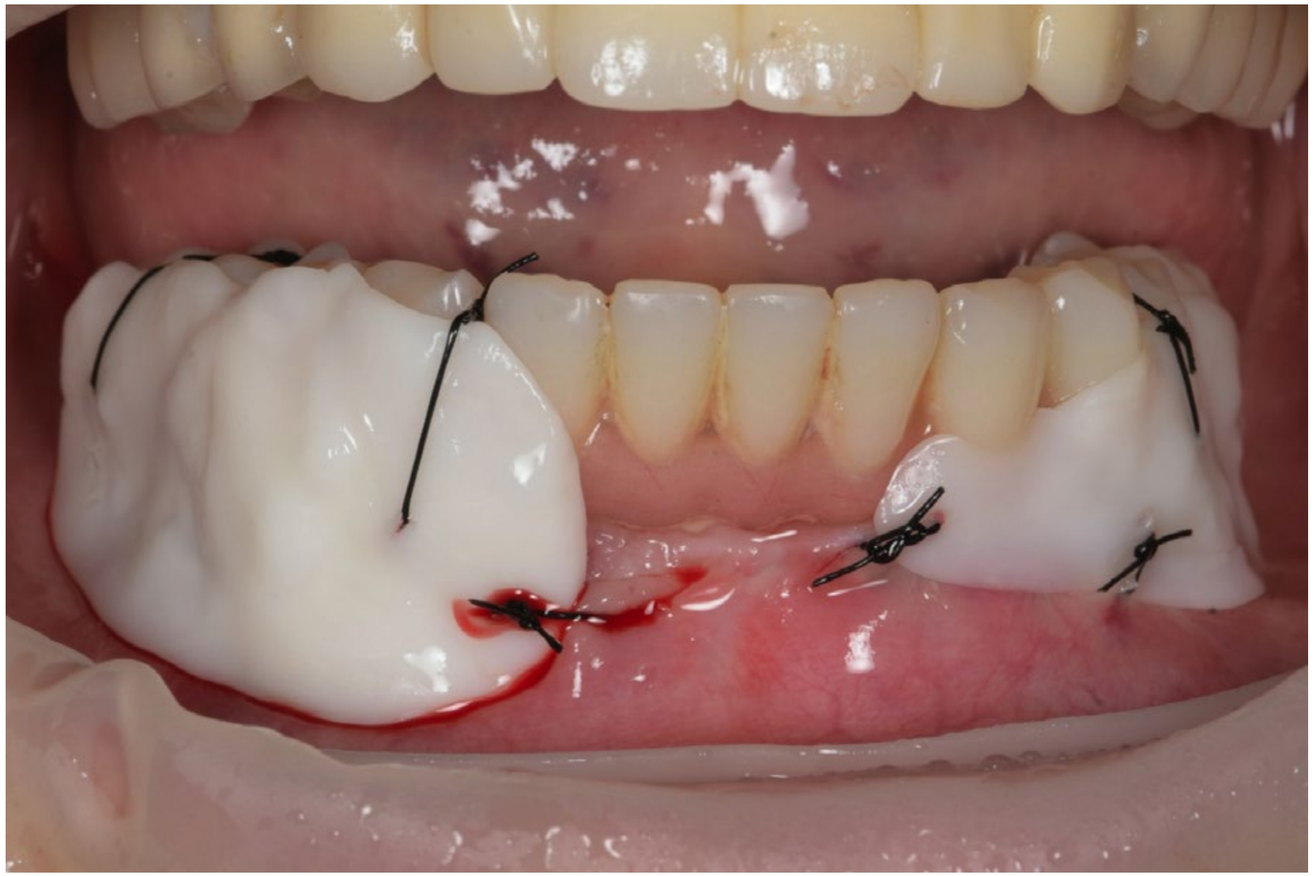
elemental®

Dr. Fabio Manuel Filannino

Product used: Elemental Granulate

Application

Mechanical antibacterial coverage of surgical site



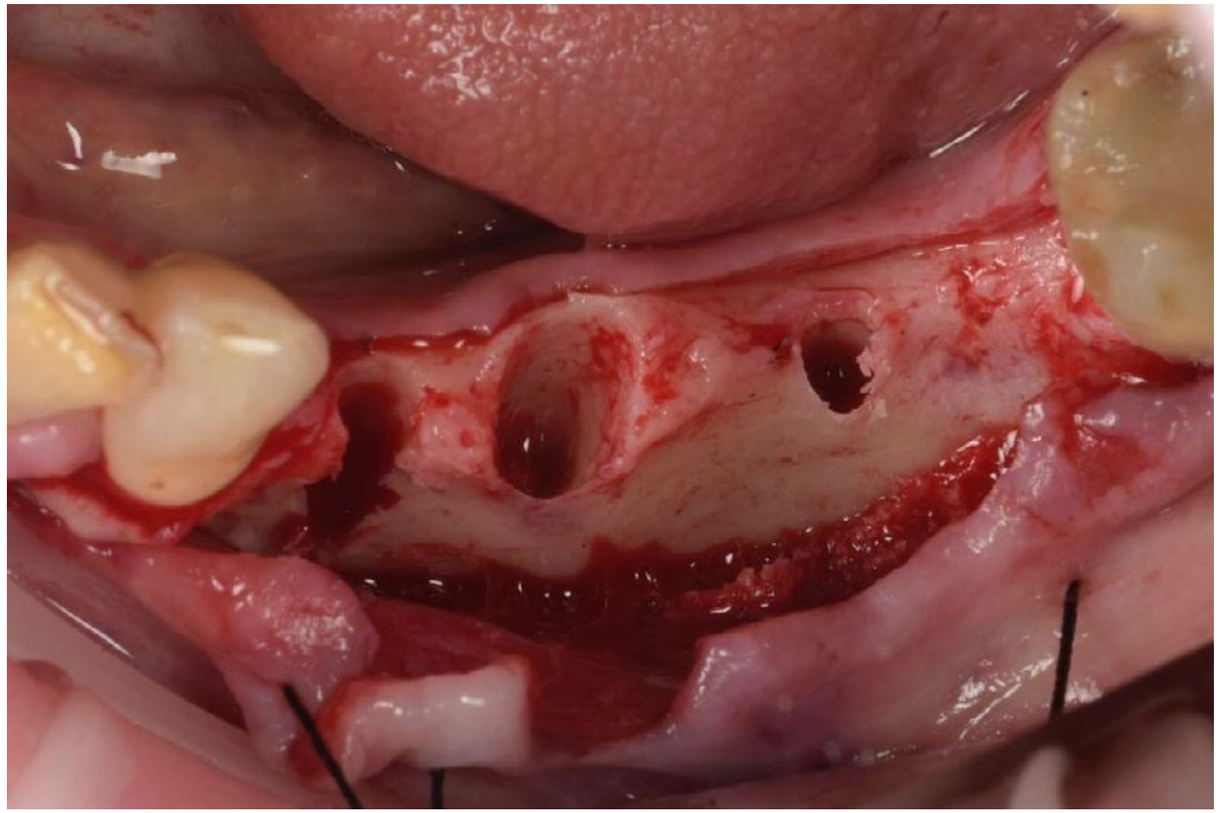
elemental®

Dr. Fabio Manuel Filannino

Product used: Elemental Granulate

Application

Mechanical antibacterial coverage of surgical site



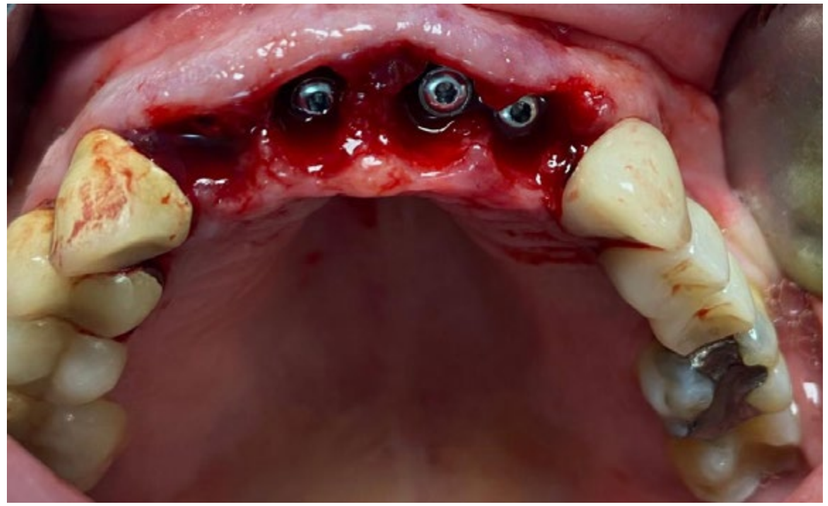
elemental®

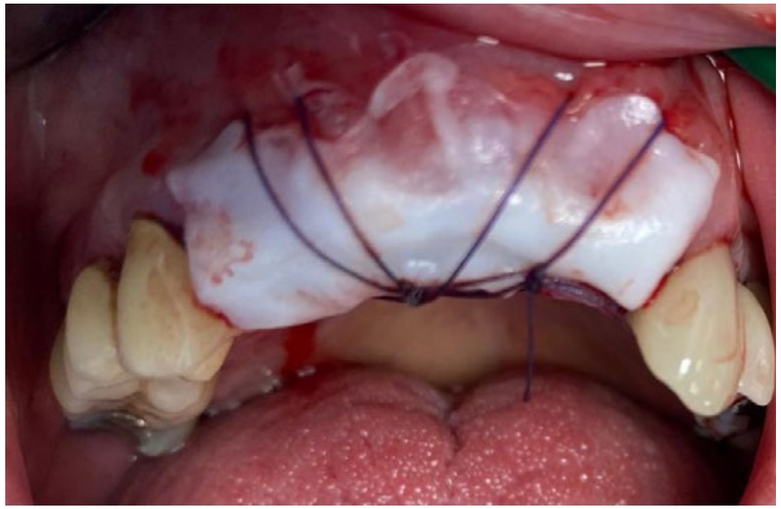
Dr. Pierre Michel Le Prado

Product used: Elemental Granulate

Application

Mechanical antibacterial coverage of surgical site





APPLICATION

Denture Relining

elemental®

Dr. Andrew Johnson

Product used: Elemental Granulate

Application

Antibacterial denture relining