



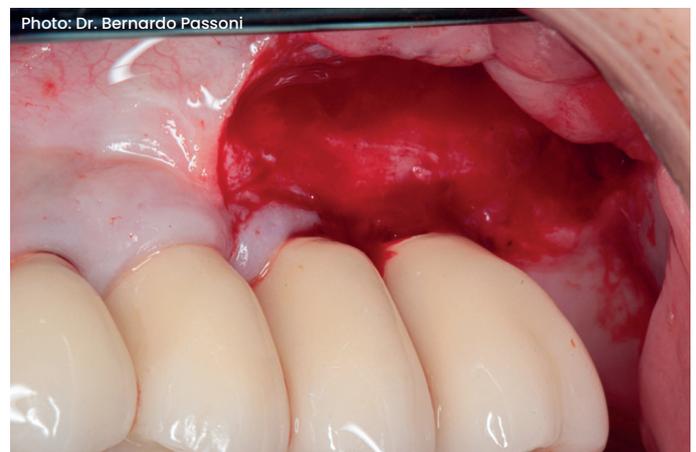
## Palatal stent on donor site after free gingival graft in gingival augmentation procedures.

Partial & removable stent with mechanical retention on molars, no sutures or haemostatic agent used on donor site.

“Elemental’s bacteriostatic polymer is easy to apply, enabling fast chairside creation of a palatal stent to decrease post-operative pain, while removing the need for suturing and using haemostatic agents on the donor site. This stent with retention on the molars is aesthetically rather subtle and interferes minimally with occlusion”

### Guidelines

- Start with performing the local anaesthesia.
- Prepare the recipient site as required for the gingival augmentation.



### Harvesting the free gingival graft

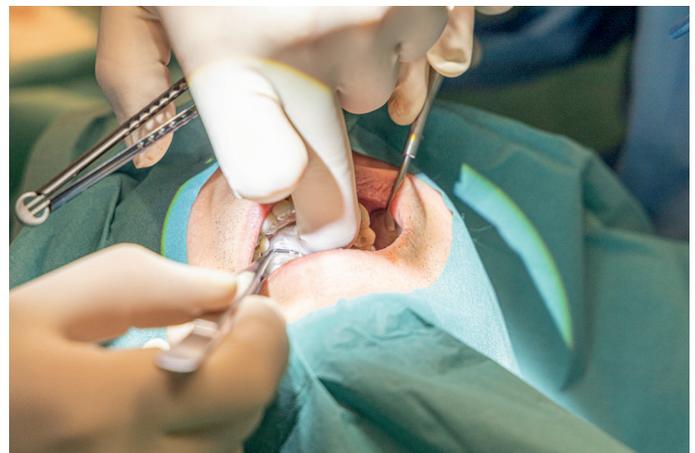
- Repeat local anaesthesia on the palate if needed.
- The area of choice for harvesting the graft is between the second premolar and second molar (#5, #6, #7). Keep in mind a safety zone of about 2mm from the gingival margin.
- Aim for 1.5mm thickness. A shallow graft will also limit the bleeding.

- **Measure:** Measure the required proportion of the graft and indicate the outline of the graft with 4 puncture points.
- **Outline:** Perpendicular to the surface, two sets of 2 parallel incisions are performed according the previous performed indication points. Attention should be given to overlap these cuts and to maintain a constant depth.
- **Undercut:** One single incision with an angulation of 30° over one of the long dimension of the outline will start undermining the surface.
- **Undermining:** Blade flattens, to same axis as surface. Thereafter the blade is rotated even further to be almost parallel to the tissue surface and moved gradually towards the other outline measure.



## Uniforming & placing the graft

- After removal, place the graft on a saline-moistened gauze.
- **Uniforming:** de-epithelialize the graft extra-orally and remove fatty and glandular tissue with a scalpel. Aim for a uniform thickness. This is crucial for vascularization. Be careful not to overwork and perforate the graft.
- While uniforming the graft, ask the assistant to apply pressure with a wet gauze until the bleeding stops.



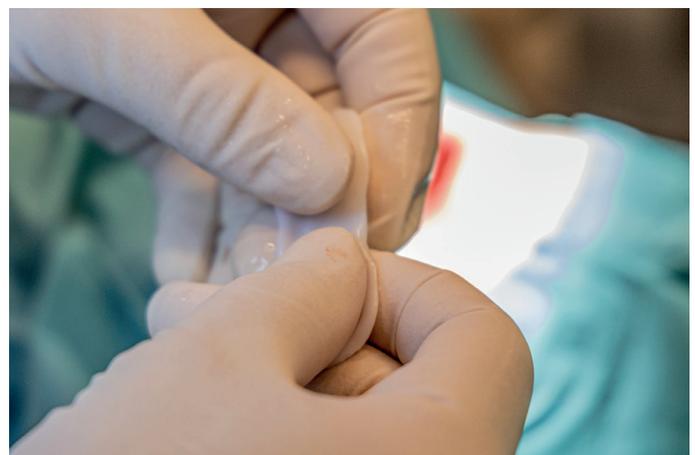
- The donor site remains uncovered while the initial blood clot is being formed.
- Apply the harvested tissue to the prepared recipient bed. Close surface contact between the graft and the recipient bed is crucial for vascularization, hence the importance of homogeneous thickness of the graft. Fixate the graft with adequate suturing.



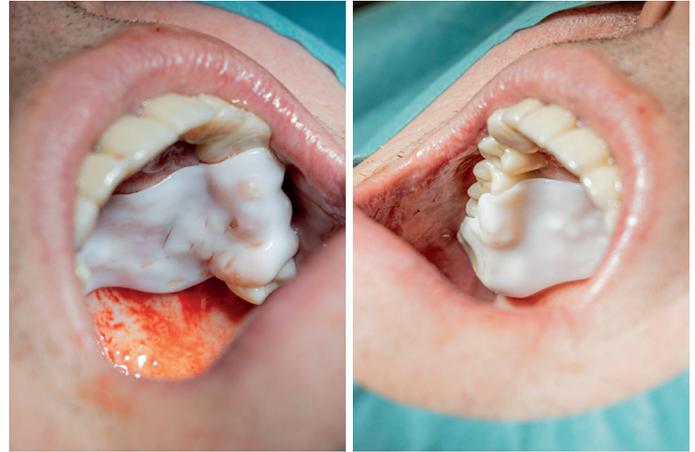
- After completion of the recipient site surgery & stabilizing the graft, we can now complete the palatal site.
- Repeat local anaesthesia on the donor site if needed.

### Creating the palatal stent

- Heat & mix the Elemental polymer. Use boiling water or sterile saline. Cooler water may result in shortened working time, and the polymer may set faster in the mouth.
- Use latex gloves to apply the Elemental polymer. When in a soft moldable state, the polymer might adhere to nitrile gloves.
- Take out the polymer and mould it into a homogenous layer of max. 2mm thickness.



- Apply the polymer manually directly onto the palate. With gentle tactile pressure, adapt the material to the anatomy of the palate.
- Achieve retention by folding the polymer at least on one side over the molars. This also creates a 'handle' for the patient to take out the stent.
- With gentle tactile pressure, press the material into the interproximal spaces and undercuts on both sides. Let the stent harden in-situ.

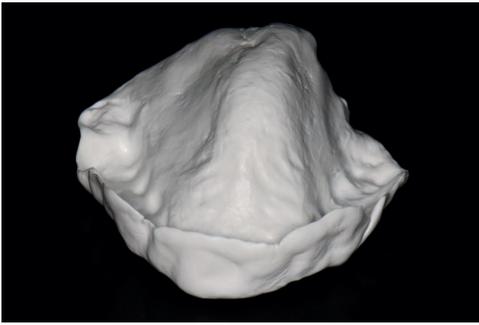


- The stent will keep the blood clot in place and provide mechanical coverage of the palatal wound, avoiding disturbance and irritation of the wound, eg. by eating or brushing.
- Suturing is not needed, which will increase patient comfort. A follow-up appointment to remove sutures is not necessary. There's no need to place a haemostatic agent under the stent.



### Patient instructions

- Recommend the patient to wear the stent for 1 to 2 weeks. Wearing the stent will minimize the post-operative pain. If the stent becomes uncomfortable, the patient can remove it and click it back in place when needed.



## Palatal stent on donor site after free gingival graft in gingival augmentation procedures.

Full palatal stent with mechanical retention over the incisal edge, no sutures or haemostatic agent used on donor site.

“This chairside stent design with mechanical retention over the incisal edge has excellent, durable stability. It can be prepared just before surgery and inserted immediately after harvesting the tissue, without suturing, to achieve excellent blood clot stability. This full palatal stent can be used for both smaller, single location grafts, as for larger combined grafts when a large area needs to be augmented.”

### Guidelines

- Start with performing the local anaesthesia. Since the anaesthesia causes the palatum to swell slightly, it is recommended to have the swelling already at the moment of creating the stent.
- Creating the stent without the swelling might lead to a suboptimal fit of the stent.

### Preparing the stent

- Use latex gloves to mix and apply the Elemental polymer. When in a soft moldable state, the polymer might adhere to nitrile gloves.
- Use boiling water or sterile saline. Cooler water may result in shortened working time, and the polymer may set faster in the mouth.



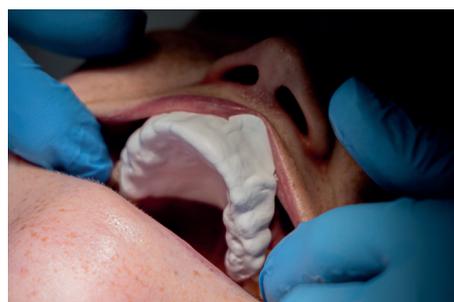
- Mould the material into a homogeneous mass.
- Using manual pressure, flatten the mass into a disc, the estimated size to cover the palate. Provide enough material to be able to extend over the incisal edge to create mechanical retention. Aim for a thickness of approx. 1-2 mm.



- If needed, briefly reheat the disc in lukewarm water to soften it before application.
- Durable mechanical retention and stability is crucial for blood clot stabilization: fold the material over the incisal edges for full-arch, stable and durable mechanical retention.



- While holding the material folded across the incisal edge, instruct the patient to press the material with the tongue against the palatum. The stent should only cover the hard palate, not the soft palate.
- Instruct the patient to bite softly into the material to create occlusion. Take the stent out and trim any excess material from the stent with scissors.
- If needed, reheat in lukewarm water before trimming and softening the edges.



- Put the stent aside to continue with the soft tissue harvesting procedure.

## Harvesting the free gingival graft

- Repeat local anaesthesia on the palate if needed.
- The area of choice for harvesting the graft is between the second premolar and second molar (#5, #6, #7). Keep in mind a safety zone of about 2mm from the gingival margin. Aim for 1.5mm thickness. A shallow graft will also limit the bleeding.
- If a large graft is required; do not include the rugae in the graft. Preferably take two shorter grafts that can be combined instead of including the rugae.
- Measure: Measure the required proportion of the graft and indicate the outline of the graft with 4 puncture points.
- Outline: Perpendicular to the surface, two sets of 2 parallel incisions are performed according the previous performed indication points. Attention should be given to overlap these cuts and to maintain a constant depth.
- Undercut: One single incision with an angulation of 30° over one of the long dimension of the outline will start undermining the surface.
- Undermining: Blade flattens, to same axis as surface. Thereafter the blade is rotated even further to be almost parallel to the tissue surface and moved gradually towards the other outline measure.



## Placing the stent

- After removal, place the graft on a saline-moistened gauze.
- Apply the stent immediately after the donor tissue harvesting procedure for optimal blood clot stabilization. Suturing the donor site is not necessary and no haemostatic agent is placed on the palatal wound.



## Uniforming & placing the graft

- Uniforming: de-epithelialize the graft extra-orally and remove fatty and glandular tissue with a scalpel. Aim for a uniform thickness. This is crucial for vascularization. Be careful not to overwork and perforate the graft.
- Leave the stent in place while uniforming the graft.



- The stent stays in place during the placement of the donor tissue on the recipient site, enhancing the view on the surgical site by blocking the bleeding.



- At the completion of the full surgical procedure, evaluate the bleeding tendency and reseat the stent if the bleeding has stopped.

## Patient instructions

- Instruct the patient to wear the stent for 7 days, as much as possible. After 7 days, the stent can be removed by the patient.





## Palatal stent with interproximal retention after free gingival graft harvesting.

Full palatal stent with mechanical interproximal retention, no sutures or haemostatic agent used on donor site.

“Elemental’s bacteriostatic polymer is easy to apply, enabling instant chairside creation of a palatal stent to decrease post-operative pain, stabilise the blood clot and create favorable healing conditions, especially in the first 3-4 days after surgery, and without having to using a haemostatic agent or suturing on the donor site. The full arch interproximal retention is stable, doesn’t interfere with occlusion and is hardly visible on the outside.”

### Creating the stent

- Heat the granulate in a glass or stainless steel bowl of boiling water or hot sterile saline. (fig. 1) Briefly stir the granulate until the material clumps together (fig. 2-3)
- Using latex gloves, take the soft polymer out of the water and press it into a thinner layer. (fig. 4-5)
- When in a soft moldable state, the granulate might stick to nitrile gloves and plastic cups. If nitrile gloves are used, applying some vaseline to the gloves will help prevent the granulate from sticking to the gloves.



Fig. 1



Fig. 2



Fig. 3



Fig. 4 - after heating, the polymer becomes soft and easy to manipulate



Fig. 5

- Apply the soft polymer onto the palate. With gentle tactile pressure, press the polymer onto the palate, making it adapt to the anatomy of the palate, and into the interproximal spaces to create retention. Full coverage of the palate contributes to optimal, stable retention. (fig. 6-12)
- The polymer will set *in-situ* into a rigid material in approximately 1 minute. Don't remove the polymer when it's still soft.
- If you're not pleased with the outcome of the polymer after setting, it can be placed back into hot water / hot sterile saline. The material will become soft and remoldable again.
- Leave the stent aside to harden completely, while continuing with the surgery.

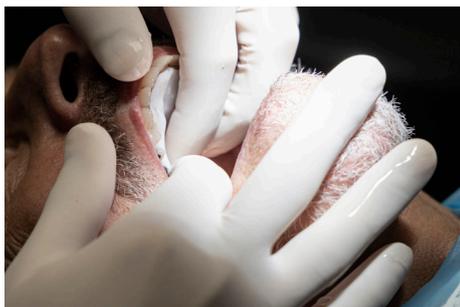


Fig. 6



Fig. 7

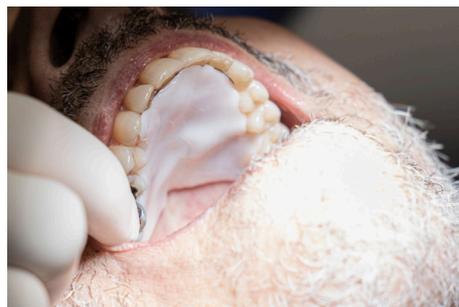


Fig. 8



Fig. 9 - example 1 of full palatal stent with interproximal retention



Fig. 10 - example 2 of full palatal stent with interproximal retention



Fig. 11 - the polymer adapts to the anatomy of the palate



Fig. 12 - the polymer adapts to the anatomy of the palate

## Free Gingival Graft

- Perform adequate local anaesthesia and prepare the recipient site. (fig. 13)
- A thorough cleaning and plaque removal is performed. (fig. 14)
- Before starting with harvesting the graft on the palate, briefly insert the stent to control the fit again, now that the stent has fully hardened. (fig. 15)
- If corrections are necessary, trim the stent with scissors or a scalpel. Optionally, reheating the stent in lukewarm water can help to trim or soften the edges. (fig. 16-17)



Fig. 13



Fig. 14



Fig. 15



Fig. 16



Fig. 17

## Harvesting the graft

- Measure the required proportion of the graft and indicate the outline of the graft with 4 puncture points. (fig. 18-19)



Fig. 18



Fig. 19

- Outline: Perpendicular to the surface, two sets of 2 parallel incisions are performed according the previous performed indication points. Attention should be given to overlap these cuts and to maintain a constant depth.
- Undercut: One single incision with an angulation of 30° over one of the long dimension of the outline will start undermining the surface.
- Undermining: Blade flattens, to same axis as surface. Thereafter the blade is rotated even further to be almost parallel to the tissue surface and moved gradually towards the other outline measure. (fig. 20-22)



Fig. 20



Fig. 21

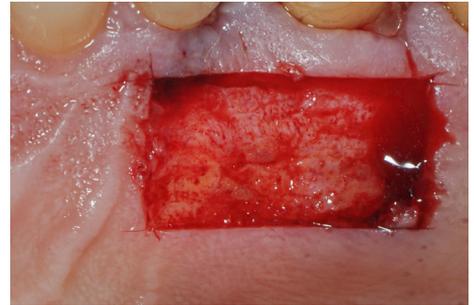


Fig. 22

- Ideally, the graft is harvested uniformly enough so that it can be placed on the recipient site immediately. A thin and uniform graft will limit the amount of bleeding.
- If necessary, modify the graft to obtain a uniform, homogeneous thickness by removing fatty and glandular tissue remnants with a scalpel. This is crucial for vascularization. Be careful not to overwork and to perforate the graft.
- Apply the harvested tissue to the prepared recipient bed. Close surface contact between the graft and the recipient bed is crucial for vascularization, hence the importance of homogeneous thickness of the graft. (fig. 23)
- Fixate the graft with adequate suturing. (fig. 24)
- The donor site remains uncovered during the recipient site surgery and the initial blood clot is being formed. (fig. 25)



Fig. 23

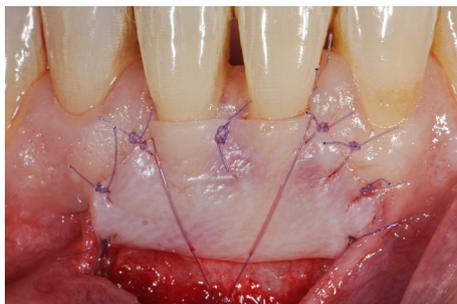


Fig. 24



Fig. 25

## Placing the stent

- Applying a haemostatic agent and suturing the donor site is not necessary: the stent stabilises the blood clot and creates favourable conditions for healing, especially in the first 3 to 4 days after surgery.
- When the surgical work is completed, place the stent. It should 'click' in place with stable mechanical retention.

## Patient instructions

- Instruct the patient to wear the stent for 7 days, as much as possible (day & night).
- Explaining the stents purpose to decrease post-operative pain & irritation of the palatal wound and encourage optimal healing is recommended to increase patient adherence.
- A chlorhexidine rinse is prescribed for the recipient site. When rinsing, the stent may be removed shortly.
- Patients are prescribed adequate analgesics in the first 2 days after surgery. From day 3, analgesic intake can be decreased.

## Clinical endpoints

- The palatal stent will protect the blood clot and create favorable conditions for optimal healing, especially in the critical first days after surgery.
- The bacteriostatic mechanical protection will strongly decrease post-operative pain, prevent wound irritation & discomfort and prevent disturbance by eating, drinking, tongue movement.



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