

TREATMENT OF INFRA-BONE DEFECTS WITH BONE GRAFTS IN SYRINGE AND PERICARDIUM MEMBRANE

A simpler approach to periodontal bone regeneration procedures.



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Chronic periodontitis is a condition that affects 10-30% of the world's population. The bacterial infection that causes it produces an inflammatory condition that leads to progressive destruction of the periodontium, in the most severe cases eventually resulting in tooth loss.

Treatment initially focuses on stopping the disease from developing, and may eventually require surgery. Infrabony defects are the most common among periodontal defects. Even when the periodontal condition that caused them has been successfully treated, they do not regenerate spontaneously and the residual pocket – in addition to being a potential aesthetic problem – may act as a new point for bacteria build-up, promoting the onset of a new periodontal disease. That is why resorting to regenerative surgery is necessary, with the aim of restoring the correct periodontal profile.

The aim of the procedure is to reconstruct both hard and soft tissue and requires grafting a bone substitute as well as a membrane to protect it. Opting for bone substitutes that assure actual bone regeneration at the graft site results in full *restitutio ad integrum* of the periodontal alveolar process. Using resorbable membranes, perfectly compatible with gingival tissue, assures their quick and effective regeneration.

Materni A. Managing a vestibular infra-bony periodontal defect in the aesthetic zone through bone regeneration: a case report. Stomatolog, 2013.

Materials

The procedure entails using a Bioteck bone substitute in syringe consisting of equine bone granules, sized 0.5-1 mm, mixed with water-based inert gel.

The granules are obtained by eliminating the equine bone antigens through the Zymo-Teck process, the exclusive enzymatic process at controlled temperature that is able to preserve the native structure of bone tissue. The gel formula is supplied in a convenient syringe that allows the granules to be extruded directly into the bone defect, thus making the graft operation much easier.

After filling, the periodontal defect is covered with a pericardium membrane (Heart, Bioteck, Italy). The Heart membrane consists of equine pericardium, which also undergoes antigen removal via the Zymo-Teck process.

The pericardium's three-dimensional structure is unaffected. This ensures the membrane has excellent mechanical resistance, so that it can be stabilized by suture or fixation devices with no risk of tearing it.



Fig. 1 – Pre-surgery situation. Notice the edema and color change at element 2.3.



Fig. 2 – An approx. 7-8mm deep periodontal pocket is found on the vestibular side.

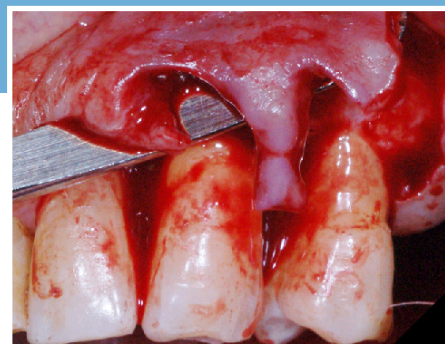


Fig. 3 – A full-thickness flap is elevated and the papillae on the vestibular side are displaced.

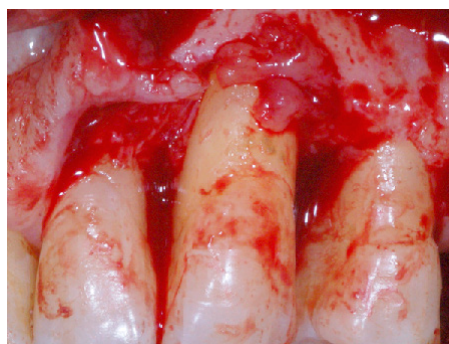


Fig. 4 – The periodontal pocket is therefore exposed, completely filled with granulation tissue.



Fig. 5 – The periodontal pocket is accurately curetted and the dental surface is debrided and planed.

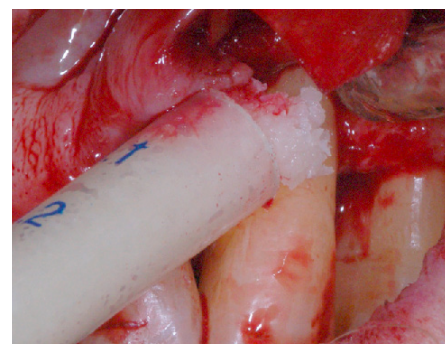


Fig. 6 – The graft is then performed by extruding the Bioteck granules directly from the syringe.

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Results

The sheet sums up the case of a 75-year-old patient who sought surgical care due to the pain he felt in the left upper arch canine. Clinical examination highlighted a vestibular pocket between 7 and 8 mm deep (pictures 1 and 2).

The patient underwent periodontal surgery. After elevating a full-thickness flap and displacing the vestibular papillae, the bone defect was curetted from the granulation tissue and scaling and root planing were then performed with rotary instruments (pictures 3 - 5).

The defect was then grafted with the Bioteck bone substitute, extruded directly from the syringe into the defect (picture 6).

The graft was covered with the pericardium membrane. This was molded so as to go through the interproximal spaces, secured apically with two pins and placed to cover the defect (picture 7).

The papillae were then repositioned and the two ends of the membrane were stabilized with resorbable suture.

Finally, the flaps were sutured (picture 8).

No complications occurred in the short-term post-operative course. 14 days after surgery, the patient only showed slight edema, which was no longer there at the one-month check.

In addition to the lack of inflammation, re-epithelialization of the papillae, still in the healing stage, was also observed at the one-month check (pictures 9 and 10).

Further progress in the healing process was observed at 45 days. At 90 days, the papillae had fully recovered a healthy appearance, there was no noticeable edema and probing depth was 1-2 mm, with no bleeding. No recession was observed and the final aesthetic effect was excellent (pictures 11 and 12).

These results suggest that using the bone substitute combined with the Heart pericardium membrane has promoted actual regeneration of the alveolar process and, perhaps, of the very periodontal ligament.



Fig. 7 – The graft is covered with the pericardium membrane, temporarily stabilized on the vestibular side with two pins.



Fig. 8 – The flap is sutured and the papillae are correctly re-positioned.



Fig. 9 – After 14 days, a slight edema at the papillae level is still observed.



Fig. 10 – After 30 days there is no edema any longer, and the papillae are still undergoing re-epithelialization.



Fig. 11 – After 45 days, the healing process of the papillae is still ongoing.



Fig. 12 – At 90 days, the papillae appear fully healed. Probing is approximately 1-2 mm and there is no bleeding.