Scientific & Clinical Evidence

collprotect® membrane

Natural Collagen Membrane

Facts

- CE since 2010
- so far no serious clinical complication or objection
- approx. 50,000 successful clinical treatments (09/2014)
- no product related recall or remark
Preclinical studies

1.

Keywords: histological evaluation; experimental study rats; native collagen matrices; pericardium; biodegradation; tissue integration; cell invasion; Jason® membrane

20th Annual Scientific meeting of the European Association of Osseointegration 2011, Athens, Greece, Poster 449

Biodegradation pattern of native and cross-linked porcine collagen matrices—an experimental study in rats
D. Rothamel, T. Fienitz, M. Benner, A. Happe, M. Kreppel, M. Scheer, J. Zöller

The aim of the present study was to compare the biodegradation and tissue integration of two novel native collagen membranes (Jason® membrane and collprotect® membrane) for GTR and GBR, harvested from porcine pericardium and dermis.

40 rats, 5 groups, 1, 2, 4, 8 and 12 weeks

Results for Jason® membrane and collprotect® membrane:
Healing was uneventful in all animals. For GBR membranes, histological evaluation revealed significant differences regarding resorption time and tissue integration. Jason® membrane was integrated within the first week and remained stable for a healing period of 8-12 weeks. Tissue integration and cell invasion took longer for collprotect® membrane; however dermal collagen of collprotect® membrane was resorbed faster within the first 4-8 weeks.

Conclusion: The present animal study showed that Jason® membrane shows significant longer resorption time than collprotect® membrane.
2.

**Keywords:** Collagen membrane, Porcine, Vascularization, Foreign body giant cells, GTR, GBR, collprotect® membrane

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The present study analysed the tissue reaction to two novel porcine dermis-derived collagen materials, i.e. mucoderm® Matrix membrane and dermis collprotect® membrane.

**Porcine dermis-derived collagen membranes induce implantation bed vascularization via multinucleated giant cells: a physiological reaction?**

Mike Barbeck, Jonas Lorenz, Alica Kubesch, Nicole Boehm, Robert Sader, Patrick Booms, Charles James Kirkpatrick, Shahram Ghanaati

By means of the subcutaneous implantation model in mice the tissue reactions were investigated at five different time points: 3, 10, 15, 30 and 60 days after implantation. Histological, histochemical, immunhistological and histomorphometrical analysis methodologies were applied.

**Results for collprotect® membrane:** collprotect® membrane underwent an early degradation while inducing mononuclear and together with some multinucleated giant cells along with a mild vascularization. The histological tissue analysis of the collprotect® membrane, which is more than four times thinner than mucoderm®, showed that 30 days are required for sequential material breakdown. The breakdown was associated with granulation tissue formation, which was formed around and within the material after 30 days. Both mononuclear and multinucleated giant cells were involved in material degradation.

**Conclusion:** It becomes obvious that the presence of multinucleated giant cells is associated with the material breakdown/degradation and vascularization.
Clinical results

3.

Keywords: case series; periodontal regeneration intrabony defects; cerabone® and collprotect® membrane

Osteology 2013, #226

To clinically evaluate the healing of deep intrabony defects following regenerative periodontal surgery with a new bovine derived xenograft cerabone® (BDX) combined with a collagen membrane of porcine origin collprotect® membrane (CM).

Healing of intrabony defects following treatment with a new bovine derived xenograft combined with a new collagen membrane

R. Cosgarea, N. Arweiler, R. Juncar, R. Tristiu, A. Sculean

7 patients (8 defects) diagnosed with severe chronic periodontitis were enrolled in the present study. Defects were filled with BDX cerabone® and covered with CM collprotect® membrane. Periapical radiographs were taken.

Results for collprotect® membrane: Healing was uneventful in all cases. Membrane exposure, exfoliation or inflammatory reactions related to the used biomaterials were not observed in any of the cases. At six months, substantial clinical improvements evidenced by CAL gain of up to 6 mm (37.5% sites; up to 3 mm 37.5%; 3.50±1.30, mean ±SD) PD reduction up to 5 mm (25%, up to 3 mm 37.5%; 3.12±1.24, mean ±SD) PBL of up to 5 mm were measured. The periapical x-rays revealed a defect fill of up to 97% (68.66±18.72%, mean ±SD).

Conclusion: Treatment of deep intrabony defects with cerabone® (BDX) and collprotect® membrane (CM) was characterized by excellent early wound healing and resulted in substantial clinical improvements.
Keywords: ridge splitting; block graft; osseointegration; maxresorb®; collprotect® membrane

Academy of Osseointegration March 1-3, 2012 Phoenix, USA, #100

Indication and Results for Grafting by Onlay Block Grafts or Ridge Splitting
J. Neugebauer, M. Scheer, F. Kistler, S. Kistler, G. Bayer, J. Zöller

Due to the atrophy implant placement requires in many cases a grafting technique. Various techniques are available which state to improve the implant side. To evaluate the results of ridge splitting and retro-molar block grafts an analysis of the initial results after one year was performed.

Results with collprotect® membrane and maxresorb®: Out of 46 patients 10 (21.7%) received a ridge splitting and 36 (78.3%) a retro molar block graft and lateral grafting by maxresorb® and coverage by collprotect® membrane. 31 implants were placed simultaneously to the ridge splitting (3.1 implants in average), while 68 implants were placed for the patients with block graft in a staged approach after 9.8 weeks (1.8 implants in average). Two out of the 99 implants showed no osseointegration at second stage surgery (97.9% success). All implants in the retromolar block graft were osseointegrated. At the time of prosthetic delivery the marginal bone loss on the implants after retromolar block transplant was 0.4 mm and for ridge splitting 1.6 mm. With ridge-splitting a loss of 1.5 mm vertical dimension were observed, while with the retromolar block transplant a vertical height gain of 2.5 mm was realized.

Conclusion: Retromolar block grafts require two surgeries to place the implants, but less material like maxresorb® or collprotect® membrane are necessary.
POSEIDO. 2013; 1(2), 69

The concept of Screw-Guided Bone Regeneration (S-GBR). Part 1: from sinus-lift to general applications in the resorbed maxilla and mandible

R. Toeroek, Z. Mazor, M. Del Corso, D.M. Dohan Ehrenfest

In this article, it was isolated and described for the first time one very specific approach named Screw-Guided Bone Regeneration (S-GBR), where the osteosynthesis screws and/or screw implants are used as pillars of the bone regenerative compartments during GBR strategies.

Results for collprotect® membrane: The space created between these screws was then filled with cerabone®. The bone material was placed up to the head of the screws, and the whole area was then covered with a non-resorbable membrane. This non-resorbable barrier was placed to isolate and protect the graft from the gingival tissue, and was finally covered with a resorbable collagen membrane (collprotect® membrane). Seven months after the first surgery, the grafted area was healed and presented a strong gingival tissue. The site was reopened, and we observed a quite dense bone (D2 to D3) and no visible resorption around the osteosynthesis screws that were maintaining the space. The 5 screws were removed carefully and the bone holes were bleeding, showing the proper biological integration of the grafted material.

Conclusion: This first article illustrates the history of GBR and how the concept of S-GBR arose with its particularities. The S-GBR can be defined as a guided bone regeneration strategy where the bone compartment is protected by a barrier and by screws (osteosynthesis screws and/or screw implants), which serve as strong space maintainers and regenerative pillars. This approach offers new opportunities of treatment, particularly in the severely resorbed posterior mandible. Understanding the nuances of techniques remains an important step to improve and develop new techniques.
The concept of Screw-Guided Bone Regeneration (S-GBR). Part 2: S-GBR in the severely resorbed preimplant posterior mandible using bone xenograft and Leukocyte and Platelet-Rich Fibrin (L-PRF): a 5-year follow-up

R. Toeroek and D.M. Dohan Ehrenfest

In this article, it is described for the first time a classical S-GBR protocol we have been using in daily practice for 6 years, were the screws are associated with a bone xenograft cerabone®, a collagen membrane collprotect® membrane, some allograft and L-PRF membranes.

Results for collprotect® membrane: In 2007, this 67 years old woman came to the implant consultation. Her mandibular right second premolar and 3 molars were absent and all extracted more than 6 years ago. The patient was wearing a partial denture since 6 years and was expecting a fixed prosthetic rehabilitation of this area. We observed a strong resorption of the alveolar ridge, with a significant piece of free gingiva on the top of the slim residual alveolar crest.

In this technique, the choice of the bone material and of the GBR barrier membrane was very important and their combination was a critical parameter.

In this case, we decided to combine a naturally cross-linked collagen membrane with a relatively short resorption time of 8 to 12 weeks (collprotect® membrane). This medium-term barrier was placed in position first. Then the bone regenerative compartment between the osteosynthesis screws was filled with a special mixed bone material prepared with half of allogeneic bone material and half of a bovine bone substitute cerabone.

Four months after the initial regeneration surgery, the gingival tissue appeared healed and mature. The regenerated alveolar crest had a very different aspect and appeared wide and strong, and the radiographic follow-up did not show any anomaly. During the second surgical step, the flaps were raised again to re-enter the site. The bone aspect was a bit irregular on the external layer, lightly
bleeding and compact with a D2-D3 density. The heads of the osteosynthesis screws appeared clearly. The 5 screws were removed carefully, and light bleeding could be observed from the holes.

**Conclusion:** As a conclusion, in our experience, the S-GBR strategy is an efficient approach for the treatment of the severely resorbed mandible.