

botiss – complete system of biomaterials for Guided Bone and Tissue Regeneration

| Krzysztof Chmielewski

INTRODUCTION

Number of available biomaterials is rising every year on worldwide dental market. For dental professionals it is good news, because competition between market leaders can bring us new materials and better prices. One of interesting company producing biomaterials is botiss dental GmbH from Germany.

In this article, I would like to share with you my first impression about handling and working with system of biomaterials from botiss company. Number of cases and photos which is present is only the small part of full documentation, but I believe that it will help to show the indications and way of work with selected biomaterials. I was surprised with full range of products and complete system, which in my opinion gives the choice to select optimum biomaterial type in every single case.

Very interesting position is bovine origin xenograft material **cerabone**[®], which is the only one material on German market with proof from Health Ministry that is 100% BSE safe. With closer look to production of this material we can easily get an answer to this certification. According to WHO bovine biomaterials are free of prions and other proteins when are treated with high temperatures above 800 Celsius degree and **cerabone**[®] is heated over 1200 Celsius degree in final stage. Other interesting option for GBR is human origin material called **maxgraft**[®]. This allograft is available as cortico-spongius and spongius only blocks and granulate as well. It's interesting alternative for harvesting autogenous bone in some cases. Bone for this material is collected from living donor patients who are accepted for hip joint replacement and after very restricted and controlled by EU regulations tests and cleaning procedures is used to create this unique material **maxgraft**[®]. An addition to GBR line of biomaterials from botiss is synthetic resorbable product: **maxresorb**[®] which helps to create stable bone volume in two stages.

As the final result we will have biomaterial replaced by natural bone in two years. Guided regeneration is directly combined with different materials based on collagen, starting from collagen sponges ending with sophisticated barrier membranes. We can choose from classic collagen membrane like **collprotect**[®] and also very stable and tearing resistant pericardium **Jason**[®] membrane. On top of this is **mucoderm**[®] collagen matrix membrane, with properties and structure which gives an interesting option for replacement of subepithelial connective tissue grafts. It can be used for classic and tunnel techniques as well.

Article size limits the volume and number of indications and cases that could be presented, that is why I invite you to visit the website www.botiss.dk where you can see and follow many other cases which are updated.



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Case 1: Short term socket preservation with use of collagen cones collacone[®]

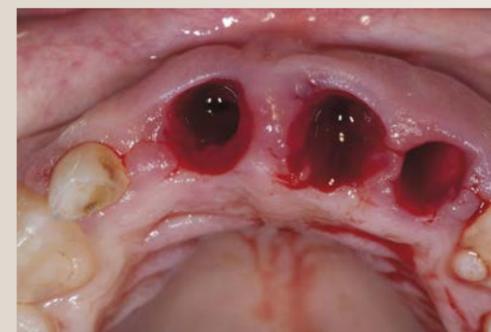
Goal: Acceleration of healing, improvement of blood clot stability, faster epithelialization on top of the socket.



1_Initial situation.
Incisors indicated for extraction.



2_View after teeth extractions.



3_View after teeth extractions.



4_Collagen cone collacone[®] before placement in the socket.



5_Positioning of the collacone[®] in the socket.



6_Positioning of the collacone[®] in the socket.



7_Collagen cones are quickly filled with blood and help in stable clot formation.



8_Clinical situation 2 weeks after extraction: fast epithelialisation and close up of socket with soft tissue.

Case 2: Recession coverage with collagen matrix mucoderm® replacing soft tissue graft.
Goal: recession coverage, thickening of soft tissue, widening of keratinized gingiva.



1_Initial situation - visible recessions and very narrow keratinized gingiva.



2_Removal of screw retained temporary crown from implant.



3_Cleaning of the exposed roots with paste.



4_Conditioning of the root surfaces with antibiotic Doxycyclinum mixed with saline solution (2 minutes)



5_Split flap technique. Periosteum is left intact on bone surface.



6_Placement and stabilization of mucoderm® matrix with resorbable sutures.



7_Sealing and stabilization of wound with coronally advanced flap with 5-0 sutures.



8_Situation after 3 months from surgery. Thicker soft tissue and wider keratinized zone is visible.

Case 3: Long term postextraction socket preservation with synthetic biomaterial maxresorb® inject.
Goal: Ridge shape preservation, 100% remodeling of the material in to natural bone of the patient.



1_Situation after extraction of first molar in lower jaw. Socket walls are intact.



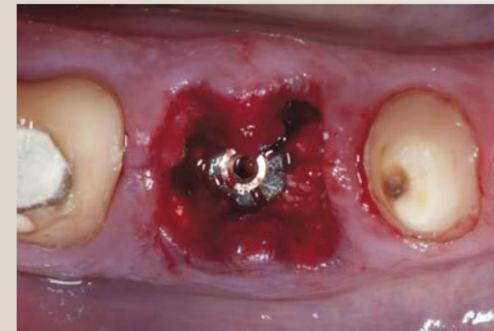
2_Immediate implantation and anchorage of the implant in the bone septum.



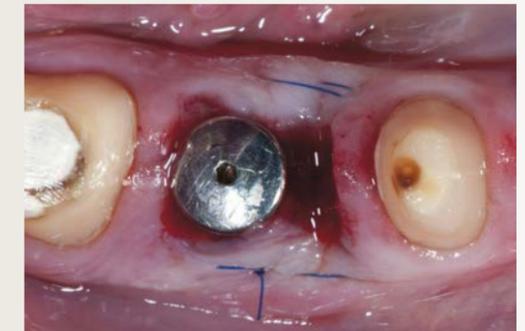
3_Implant placed 1mm below the crest.



4_Filling of the socket with maxresorb® inject. Fast filtration of the material with blood.



5_Visible implant platform and biomaterial filling the socket.



6_Open healing with healing screw. Sealing of the socket with mattress suture.



7_Healing after 3 months from implantation.

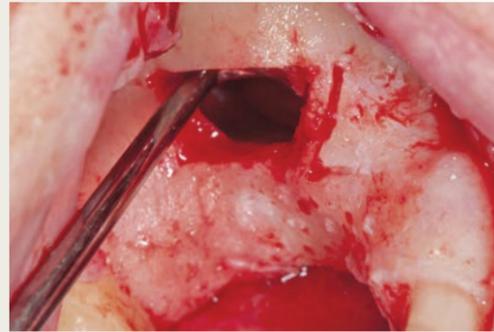


8_Visible healing of the soft tissue and preserved ridge shape.

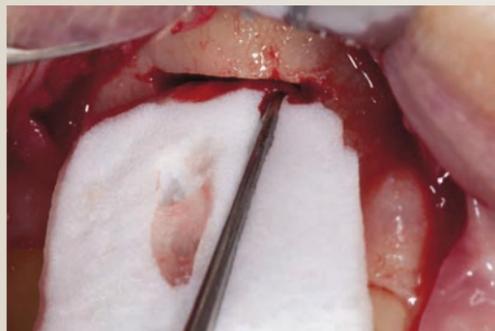
Case 4: Sinus lift augmentation with simultaneous implant placement and vertical bone augmentation with allograft maxgraft®
Goal: Augmentation of the sinus cavity , reconstruction of the vertical bone defect, implants placement



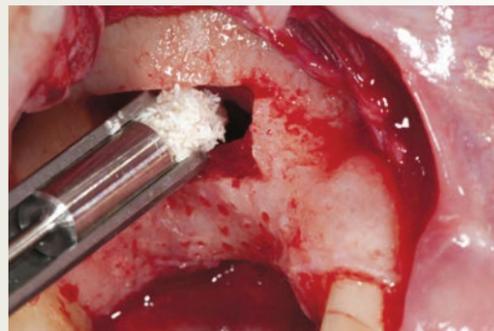
1_Initial situation - vertical defect of the ridge.



2_Elevation of Schneiderian membrane.



3_Insertion of collagen Jason® fleece to protect the membrane from accidental perforation



4_Application of bovine biomaterial cerabone® in the sinus cavity.



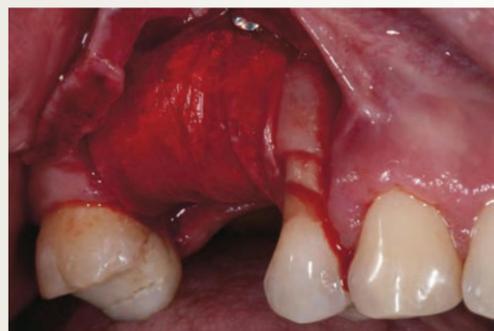
5_Prepared cortico-spongiosa allograft block maxgraft® before fixation.



6_Two Ankylos implants inserted and anchored through bone block. Augmentation with maxgraft® spongy particles.



7_Closing of the lateral window and covering of allograft with nonresorbable cerabone®



8_Covering of the augmented site with pericardium Jason® membrane. Stabilization with titanium pins.