Innovative tissue regeneration with dimensionally stable, defect-congruent β-TCP composite

author_ Ronny Gläser M.Sc., Germany

Fig. 1_ β-TCP granules in applicator syringe + biolinker in eye-dropper bottle after removal from the sterile packaging (easy-graft™ 400).
Fig. 2_ The mixture of β-TCP and biolinker is ready to use immediately. Before use, the excess biolinker simply has to be discarded onto a sterile swab.

_**Bone defects** are a common finding in oral and maxillofacial surgery. These defects can arise as a result of pathological cavities (cysts), bacteria causing periodontal disease (periodontitis) or following the removal of teeth that are not worth saving (extraction sockets). In addition, bone deficits are caused by age-related bone atrophy as well as inactivity atrophy after tooth loss. Oral and mandibular trauma may also lead to substantial bone loss. Modern dental implantology has become well established not only as a possible alternative, but often as the treatment of choice, also favoured by patients, owing to a statistically high success rate in relation to the osteointegration of oral implants. As a result, there is considerable demand for methods that will compensate for the bone loss that arises. There are numerous methods available to the clinician, such as distraction osteogenesis, onlay grafts, open and closed sinus lift as well as GBR and a wide variety of materials (autologous, allogenic, xenogenic or alloplastic) with all their advantages and disadvantages. Increasingly, however, a preventive approach to bone defects has emerged as a better option. This includes the technique known as ridge or socket preservation. The aim is to prevent the five wall bone defect from collapsing in height and width, by filling the well curetted extraction socket, and thus to create favourable preoperative conditions for delayed implant insertion or other prosthetic treatments such as bridge pontics. In most cases this means that time consuming, costly and often more risky bone reconstruction at a later stage can be avoided to the benefit of the patient. A technique of socket preservation is presented below, in which soft tissue coverage of the augmentation material or placement of a membrane can be omitted in most cases because of the special properties of the bone augmentation material used.

_Material and method

The material used for this purpose is a phase-pure β-TCP with high microporosity and interconnecting pores which is coated with a thin layer of polylactide-co-glycolide (PLGA-coated) (easy-graft™). Mixing an organic solvent (biolinker) with the coated granules in an applicator syringe produces an augmentation material with a pasty con-


Fig. 1


Fig. 2