

OraGRAFT[®] Cortical Plate



Bone Augmentation With Cortical Plate Surgical Technique

Background Info on the Shell Technique:

The shell technique is a typical method for hard tissue augmentation involving the preparation of a compartment for bone graft material for reconstruction of severe atrophy of the maxilla or the mandible.

Studies demonstrate that horizontal and vertical augmentation of the atrophied ridge with thin mandibular blocks, in combination with particulate bone grafts, offer a stable peri-implant bone level over a period of time. (Khoury 2017) The shell technique involves using a thin plate of cortical bone to create a container that can create and maintain the necessary space for bone graft particulates, the plate functions as a stable, slowly resorbable material.

Khoury and Hanser (2015) published a 10 year prospective analysis on the use of over 3800 blocks in over 3300 patients. In their study, bone blocks were harvested from the external oblique line of the mandible according to the MicroSaw protocol. The bone blocks were split into two thinner blocks with a diamond disk according to the split bone block (SBB) technique for biologic grafting procedures.

Peck (2015) described a case using allograft bone for the Khoury technique in order to avoid some of the potential problems with autogenous recovery.

Indications for the Shell Technique

- Vertical augmentation
- Horizontal augmentation
- Tooth gaps

Description and Properties of the OraGRAFT Cortical Plate

The graft is an osteoconductive graft made from 100% donated human cortical bone. Cortical bone has been shown to remodel slowly in a controlled fashion. (Pendarvis WT, Sandifer JB. 2008)

- Dimensions 30x15x1 mm
- Material: Donated human cortical bone
- Sterility: Processed using LifeNet Health's proprietary Allowash XG[®] process rendering the tissue with a Sterility Assurance Level (SAL) of 10⁻⁶
- Preservation: The graft is preserved using LifeNet Health's patented Preservon[®] preservation process and can be maintained in a hydrated state at room temperature.
- Shelf-life: Five years at room temperature storage

Use of OraGRAFT Cortical Plate with other materials

The OraGRAFT Cortical Plate is amenable with additional grafting materials. Material selection should be based on the defect morphology, patient's health status, desired outcomes and the surgeon's preference.

You may consider OraGraft 70/30 mineralized/demineralized

particulate because of the osteoinductive potential from the demineralized portion and osteoconductive potential in the mineralized portion.

You may also mix the grafting material with the patient's own bone. Finally, the construct should be covered with a long acting barrier.

Patient Assessment and Treatment Planning

Patient selection is essential for a good surgical outcome. Special attention should be paid to factors that impair bone healing. The anatomy, bone quality and residual height and width are all factors that should be considered in determining whether or not the patient is an acceptable candidate for the procedure.

Treatment planning should include determining the ideal implant type, diameter and length. These factors should help to determine

the amount of new bone that is needed. Ensure there is adequate soft tissue to achieve tension-free primary closure. The size and position of the plate should also be determined during planning if possible.

Contraindications and precautions are listed in the Instructions For Use (IFU) that comes with the graft.

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Procedural Steps

Site Preparation

- Flap Preparation: Flap large enough to allow full-access to the entire defect
- Sizing: Confirm appropriate size and position of graft
- Trimming: Trim to appropriate size
- Hydration: None required
- Host Bone Preparation: Perforating the host bone to create a bleeding site has been shown to improve outcomes

Positioning and Fixation

- Create a 'compartment' by placing the plate the desired distance from the host bone.
- The plate should be at least 1 mm from the edge of the implant based on the desired implant position.
- The plate should be as straight as possible with minimal bending.
- Secure the plate so that there will be no movement of the plate with at least two screws to secure the plate to the patient's bone. Predrilling the bone will reduce the risk of fracturing the plate, the use of low-profile screws is preferable. Do not countersink the screw heads.

Rounding of the Edges

- Prevent irritation or perforation of the soft tissue from sharp edges or corners on the plate using a burr.

Filling the Defect

- The space between the plate and the defect should be filled with particulate grafting material. The appropriate allograft mixed with some host bone can improve healing and incorporation of the construct.

Coverage with a Barrier Membrane

- Coverage with a barrier membrane is recommended.

Wound Closure

- Proper soft tissue management is essential to a good outcome. The soft tissue coverage must be tension free.

Healing Time

- A minimum of six months is recommended, however the healing time is best determined by the surgeon, based on the patient's health and medical history.

Implant Placement

- The fixation screws should be removed, and the implants placed. Implants should be surrounded by a minimum of 1 mm of bone.

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