Sinus lift with simultaneous implant placement.

Piezosurgery offers the patient a gentle treatment with less complications and time saving benefits.

By Dr. Peter Hentschel

Oral rehabilitation has been paid notice for a long time to regain masticatory function and for aesthetic reasons. Implant placement in the maxilla is often limited due to missing height of the alveolar process, this can be solved by external Sinus Graft (Boyne 1980). The alveolar crest can be built up to 8-15 mm by Sinus Elevation. The success rate is between 85 to 96 % after 15 years. The function of the sinus is up to 8-15 mm by Sinus Elevation and augmentation a second surgical procedure can be avoided by simultaneous implantation in case of 5 mm bone height. During the elevation with simultaneous implant placement is indicated with up to 97.9% survival rate in after years (Pelegr et al. 2000).

Guided Bone Regeneration (GBR) as state of the art method for bone grafting uses in most cases biocompatible non-resorbable membranes. Resorbable membranes offer several advantages beside the easy handling, as no need for a second surgical procedure for removal or minimization of complications, e.g. soft-tissue dehiscences.

Based on diagnostic planning piezosurgical window preparation in 15 (Fig.5) was performed after local anesthesia and peristomal flap. By choosing a round-oval lid design sharp edges can be avoided which reduces the risk of perforation.

After release of the sinus membrane (Fig.4) the implant tunnel was prepared (Fig.5) and the Implant (SL Implant; Dentegris, Germany) placed (Fig.6). Simultaneously the surrounding space was covered with a rehydrated Collagen Membrane (Bone Protect Membrane; Dentegris, Germany) as protections of the Schneiderian membrane (Fig.7). Autologous bone was mixed with Compact Bone B and placed in the sinus for stabilization (Fig.8).

After control of primary stability particulate materials was filled laterally and covered with pericard membrane according to GBR standards (Fig.9). The flap was readapted and closed, control by X-ray shows axial positioning and augmentation of sinus maxillaris (Fig.10).

Recovery after five months was accompanied by full ceramic crown and results in aesthetic and harmonic rehabilitation (Fig.11).

For filling of horizontal-cranial space and stabilization of bone-lid a bovine bone graft is used (Compact Bone B; Dentegris, Germany). Bovine bone has been used in dental surgery for decades and is well known for stable and reliable results.

To ensure the barrier and to stabilize the particulated bone-graft material a pericardium membrane with a resorption time of 16-24 weeks is used (Bone Protect Membrane; Den
tegris, Germany). The pericardium membrane offers very good handling properties in combination with a prolonged barrier function.

Case Study

The patient (30 y.f.) was showing an alveo lcos tart tooth in 15 (Fig. 2). Patient’s request was aesthetic and masticatory rehabilitation which was suggested by one-stage elevation.

Single tooth rehabilitation with implant is the appropriate method instead of conventional use of bridge. In the reported case the situation is aggravated by the lowered sinus and lateral limit by intact adjacent teeth. For lateral one-stage sinus lift we are using the special designed Sinus-Lift implant for increased primary stability (SL Implant; Dentegris, Germany). The improved stability is based on micro threads with increased contact in neck area. The autologous bone is gained during surgical procedure within piezo hused window preparation and drilling process (Fig. 1).

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