Immediate Implant Placement and Sinus Lift with Simultaneous Guided Bone Regeneration

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This case illustrates immediate placement of implants in conjunction with a sinus elevation procedure facilitated by a bone graft substitute.

A 62 year old male patient was seen for a failing fixed bridge at sites #3 (16 – FDI two-digit notation) to #6 (13), due to the fracture of abutment tooth #6. Post and core build-up on the abutment at tooth #6 led to the horizontal fracture at the gingival level (Fig. 1).

The bridge covering teeth #3 to #6 was sectioned mesial to tooth #3, retaining the crown, but removing the segment encompassing teeth #4 (15), #5 (14) and #6. Tooth #6 was extracted with the Easy X-Trac® system maintaining gingival and osseous architecture (Fig. 2). Following the extraction, a Straumann® implant was placed at site #6 with simultaneous bone grafting using DynaBlast™ (Citagenix Inc., Montreal, Qc) to fill the periimplant defect. At site #4, an osteotome internal sinus lift procedure with DynaBlast bone graft material and simultaneous placement of a second Straumann implant was performed (Fig. 3). Small internal healing caps were placed on the implants to allow for submerged implant healing (Fig. 4). The sites were covered with DynaBlast and sutured for submerged closure at site #4 and semi-submerged closure at site #6, including the placement of a resorbable collagen barrier membrane.

At the two week post-operative appointment, excellent healing and slow disintegration of the membrane at site #6 were observed. At the 3 month post-operative visit, the patient had excellent tissue health at the surgical site. Final restoration was performed at 5 months with ease and no complications due to the excellent soft and hard tissue integration of both implants assisted by DynaBlast, resulting in successful bone remodeling (Figs. 5 & 6).

The implants were revealed after 3 months of healing with a punch-type uncovering of implants. Larger healing caps were placed on the implants for 1 month. Final impressions and placement of abutments for a cementable final restoration were performed after 4 months of healing, and the final restoration was placed at 5 months post-surgery (Fig. 7).

DynaBlast, comprised of demineralized bone and RPM (reverse phase medium – a bioresorbable carrier that demonstrates increased viscosity with increased temperature), allowed for easy handling and precise application into the periimplant extraction defect at site #6 and allowed for a non-invasive osteotome internal sinus lift procedure at site #4. The increase in radiographic density of the DynaBlast bone graft material in the sinus further underscored the successful outcome of the procedure.