

The 3D reconstruction of the alveolar crest with mandibular bone block graft: A clinical study.

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Introduction: Vertical alveolar defect reconstructed with mandibular graft in form of one cortical block presents sometime a poor site for osseointegration of titanium implants due to a low revascularisation potential of the cortical bone. Particuled bone graft seems to get better revascularisation giving a good quality of regeneration of the augmented area. The presented study described the 3 D reconstruction of vertical defects based on the combination of thin mandibular cortical blocks with particuled bone grafts. The long term results are also discussed.

Materials and Methods: 132 patients (84 females, 48 males) were treated with this technique between 1995 and 2000. Autogenous bone was harvested from the retromolar (114) and chin (18) area with the micro-saw technique. The cortical block is cut with the diamond disc in a longitudinal axis creating 2 blocks with the same dimension but with the half of the primary thickness. One block is used to reconstruct the buccal bone wall, the second block the palatal (lingual) wall. The area between the blocks is filled with particuled bone. The 237 implants were inserted 4 months post operatively. In 24 cases this was done in combination with the removal of biopsies for histological documentation.

Results: 2 Complications were observed: one exposure of the graft, and in the other case a poor regeneration with migration of soft tissue in the grafted area. In all the remaining patient good healing occurs. The average of the vertical augmentation was on the vestibular site 9,2 mm (SD +- 3,2) and on the palatal site 7,2 mm (SD +- 3,5). The average of the thickness of the new formed crest was 7,2 mm (SD +- 1,8).

Only one implant failed 3 months after loading. All the other implants are osseointegrated with full function. The periimplant bone observed on the radiographs showed no differences to implants inserted in none grafted areas. The histological specimens documented a high percentage on vital cells in the grafted/ regenerated area.

Conclusion: The method of the 3D reconstruction seems to be a good alternative to the reconstruction of vertical defects with one cortical block or with membranes by GBR technique. The low rate of complications and the good bone regeneration in combination with the amount of vertical augmentation about 9mm is encouraging

References:

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