

The Tunnel Technique in Bone Grafting procedures: A Clinical Study

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Introduction: In the last 15 years bone grafting became more and more a routine procedure performed with different techniques; Autogenous bone is mostly used. The main complication of this procedure, specially in vertical onlay block graft, is the wound dehiscence with exposure and infection of the graft. The use of a tunnel preparation with only a small vertical incision preserves the blood supply of the soft tissue cover reducing the risk of flap necrosis. Aim of the study is a clinical evaluation of this method.

Materials and Methods: 173 patients (92 females, 81 males) were treated with this technique between 1999 and 2002. Autogenous bone block graft harvested from the retromolar and chin area of the mandible with the micro-saw technique were used in 82 vertical onlay and in 46 lateral block grafting. Blocks harvested from the hip were used in 24 vertical onlay and 21 lateral grafting. The grafting surgery was done in 47 patients only through one mesial vertical incision. In other 94 patients the surgery was performed through two vertical incisions (mesial and distal). In the remaining 32 patients the surgery was performed in the maxilla through a 2 cm horizontal incision in the area of the maxillary sinus for complete vertical reconstruction of the crest in combination with sinus lifting procedures. The implants were inserted 3 – 4 month post operative.

Results: Only in one patient a flap necrosis occurred with partial exposition of the graft. In other 2 patients minor complications were observed without influencing the definitive treatment. In the remaining 170 patients the wound healing was without any complications. A total of 453 implants were inserted in the grafted area 3 to 4 months post operatively and loaded 3-4 months later. 3 implants failed (0,66%).

Conclusion: This clinical study documented encouraging results in reducing the risk of exposure of the block graft. The low rate of wound dehiscences of 1,7% is certainly due to the absence of any crestal incision which compromises the vascularisation and finally the regeneration of the bone graft. This is a particular advantage for bone grafting in the vertical dimension.

References:

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