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Clinical article

Lateral ridge augmentation using autografts and barrier membranes: A clinical study with 40 partially edentulous patients

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Abstract

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Purpose This study evaluated predictability and treatment outcome of the combined application of autografts and expanded-polytetrafluoroethylene (e-PTFE) membranes for lateral ridge augmentation in partially edentulous patients using a staged approach.

Materials and Methods Forty partially edentulous patients were consecutively treated. Emphasis was given to a lateral incision technique, perforation of the cortex to open the

cocancellous autografts and bone chips, precise

adaptation of the e-PTFE membranes and stabilization with miniscrews, and a tension-free primary soft tissue closure. After 7 to 13 months, the sites were reopened for membrane removal and implant placement.

Results All but one patient showed complication-free soft tissue healing. After reopening, 38 patients exhibited excellent ridge augmentation, whereas two had compromised results, with soft tissue encapsulation of some bone chips. None of the applied block grafts showed clinical signs of resorption. Preaugmentation and postaugmentation measurements showed an enlargement of the crest width from a mean of 3.5 mm to 7.1 mm. This allowed the placement of nonsubmerged titanium implants in all 40 patients.

Conclusions The current study demonstrates that the combined application of autografts and e-PTFE membranes is a predictable surgical procedure for lateral ridge augmentation that results in an enlargement of the alveolar crest in partially edentulous patients. The autografts support the membrane and activate bone formation with their osteoconductive and osteoinductive properties. The membrane acts as a physical barrier to nonosteogenic soft tissue cells, and protects the autografts against resorption during healing.



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