

Autologous Tooth Dentin Graft: A Retrospective Study in Humans

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Abstract

Background and Objectives: The aim of this study is to evaluate the efficacy of an autologous dentin graft, via extracted teeth that are processed into bacteria-free particulate dentin in a Smart dentin grinder and then grafted immediately into alveolus post extraction or into bone deficiencies. **Materials and Methods:** Ten healthy, partially edentulous patients with some teeth in the mandible were recruited in the study. After their own teeth were grinded, particulate teeth were placed in empty sockets and bone defects after teeth extractions. Furthermore, after three, six, 12 and 24 months, core samples using a 3 mm trephine were obtained. **Results:** At three months, the particles of grinded tooth were immersed inside a new connective tissue with a small new bone formation (16.3 ± 1.98). At six months, we observed small particles of dentin integrated in new immature bone, without inflammation in the soft tissue (41.1 ± 0.76). At twelve months, we observed a high amount of bone formation surrounding tooth particles (54.5 ± 0.24), and at twenty-four months, new bone, a big structure of bone, was observed with dentin particles (59.4 ± 1.23), statistically different when compared it with at three months. **Conclusions:** A particulate dentin graft should be considered as an alternative material for sockets' preservation, split technique, and also for sinus lifting. One of the special characteristics after 24 months of evaluation was the high resorption rate and bone replacement without inflammation. This material could be considered as an acceptable biomaterial for different bone defects due to its osteoinductive and osteoconductive properties. © 2021 by the authors. Licensee MDPI, Basel, Switzerland.

Author keywords

Autogenous particulate dentin graft; Autologous graft; Bone grafts; Dental graft; Human teeth; Smart dentin grinder