Reichert C, Wenghöfer M, Götz W, Jäger A
Pilot study on orthodontic space closure after guided bone regeneration
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Objective. In the present study, the benefit of moving teeth into extraction sockets preserved by a bone substitute was evaluated. This was performed to determine whether this was advantageous for orthodontic space closure.
Patients and methods. Socket preservation employing the bony alveolus in patients presenting the orthodontic indication for premolar extraction therapy was performed. Analogue premolars were extracted in a split-mouth design. One extraction alveolus was filled with a silica matrix-embedded, nanocrystalline hydroxyapatite bone substitute, with the other acting as a control. The orthodontic space was then closed using NiTi closed coil springs (200 g). Photographs and X-rays were acquired for documentation.
Results. Space closure succeeded without complications, e.g., root resorptions or inflammations. Gingival invaginations occurred in two of the control sites. A difference in the velocity of extraction space closure in one patient was also observed.
Conclusion. Orthodontic tooth movement using this bone replacement material is possible according to these study results. This technique, thus, warrants further investigation in future clinical trials focusing on preventive means to reduce the development of gingival invaginations.