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Regenerative therapy using bovine bone mineral shows stable long-term results: a practice-based study

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Aim

The objective of this retrospective cohort study was to evaluate whether evidence from randomized clinical trials on the successful treatment of intrabony defects by regenerative therapy can be transferred to patients in a periodontal practice.

Material and Methods

In 191 patients a total of 1099 teeth with intrabony defects were treated using bovine bone mineral with or without collagen membrane. Defects were classified as 1- and 2-wall and as shallow (≤ 6 mm), moderate (7-10 mm) and deep (≥ 11 mm).

A total of 1008 defects in 176 patients were monitored clinically and radiographically for collection of 1-year short-term, mid-term (2-4yrs) and long-term (5-10yrs) data. 15 patients were excluded from analysis because they were lost to follow-up (no compliance or supportive care alio loco). Change in radiographic bone levels was used as primary outcome parameter.

Results

Overall a mean radiographic bone fill of $>50\%$ was observed. Deep and moderate defects showed a higher degree of reconstruction than shallow defects (54,5% vs. 50% vs. 43,3%). Radiographic bone gain obtained at 1year remained stable during mid-term and long-term follow-up. Tooth loss amounted to 2.6%, was dependent on initial defect size (1.2% for shallow, 1.4% for moderate, 5.7% for deep defects) and occurred mainly due to endodontic reasons.

Conclusion

Under conditions of daily periodontal practice regenerative treatment with bovine bone mineral with or without collagen membrane can lead to a mean defect resolution of greater than 50% and can be maintained up to 10 years after surgical intervention in patients with compliance to periodontal supportive care.

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