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Clinical comparison of Bio-Oss plus 10% collagen with a bioabsorbable collagen barrier or coronally advanced flap in treatment of mandibular molars class II furcation defects

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Abstract:

Background and Aim: Furcation defects are one of the most challenging problems in periodontal therapy. Regenerative treatment significantly improves the prognosis of the involved teeth. The aim of this study was to compare Bio-Oss plus 10% collagen in combination with either a bioabsorbable collagen barrier (BO/GTR), or coronally advanced flap (BO/CF), in treating human mandibular class II furcation defects.

Materials and Methods: This clinical trial included 10 patients with 10 pairs of similar periodontal defects. Each defect was randomly assigned to treatment with BO/CF or BO/GTR. Following basic therapy, baseline measurements were recorded including probing pocket depth (PPD),closed horizontal probing depth (CHPD), clinical attachment level (CAL), and gingival margin position (CEJ-GM), together with plaque and gingival indices. Hard tissue measurements were performed during surgery to determine alveolar crestal height (CEJ-AC), and vertical and horizontal open probing depth (OVPD, OHPD).After 6 months, all sites were re-entered and soft and hard tissue measurements were recorded.

Results: Both surgical procedures significantly reduced probing depth and improved clinical attachment levels, with no significant difference between groups. Gingival margin position (CEJ-GM), was improved in the BO/CF group (0.66±0.51 mm, $p<0.05$), but not statistically different from BO/GTR group in which remained relatively constant (0.00±0.81 mm). Vertical defect resolution was significant in each groups (BO/CF:3.17±1.47 mm, BO/GTR:3.33±0.51mm). Horizontal defect resolution was also significant with either procedure (BO/CF:3.67±1.31 mm, BO/GTR:3.80±1.83 mm), with no statistically significant difference between groups. Data were analyzed with wilcoxon and Mann-Whitney tests with $p<0.05$ as the level of significance.

Conclusion: Based on the results of this study, treatment of mandibular class II furcation defects with both procedures resulted in statistically significant improvement in open and closed probing measurements, with no significant difference between treatment groups. In BO/CF group there was an additional improvement in gingival recession (CEJ-GM) measurement, which could be attributed to applying crown-attached sutures by the use of orthodontic brackets.

Keywords:

Guided tissue regeneration . Furcation defect . Membranes . Collagen . Coronally advanced flap

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