Thesis Title Clinical New Attachment in Human Furcation Involvement by Guided Tissue Regeneration versus Coronally Positioned Flap

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ABSTRACT

The present clinical trial was designed to evaluate the regenerative potential of the periodontal tissue in Class II furcation defects on mandibular molars using reconstructive surgery based on the biological principles of guided tissue regeneration (GTR) versus coronally positioned flap (CPF) technique. Twenty-four first and/or second mandibular molars with Class II furcation defects on buccal aspects in 19 subjects (30-65 years of age) were selected for the study. After the completion of initial phase of therapy and 4-6 weeks healing period, these teeth were examined for the baseline data which included plaque index gingival condition, probing depth (PD), probing attachment level (PAL-V,PAL-H) and radiographic analysis. The furcation involved molars were randomly assigned to be treated by GTR or CPF procedure. For the GTR group, the elevation of mucoperiosteal flaps at the buccal and lingual aspect of the alveolar processs was performed. The inner surface of each flap was carefully curetted to remove epithelium and granulation tissue. The root surfaces were scaled and planed. Enamel projection or enamel pearls was removed. An e-PTFE membrane was adjusted to cover the entrance of the furcation area and the adjacent root surfaces as well as a portion of the alveolar bone apical to the crest, in such a way that the epithelium and the gingival connective tissue were

prevented from reaching contact with the root during healing. The flaps were repositioned and placed on the outer surface of the membrane and secured with interdental sutures which were removed after 1 week of healing. Following surgery, the patients were instructed to rinse the mouth twice daily with chlorhexidine gluconate. Second surgical phase after a healing period of about 6 weeks the e-PTFE membrane was removed. In the CPF group, the surgical procedure followed the same pattern as in the GTR group with the exception of the placement of the e-PTFE membrane. In addition the flap was coronally positioned and secured by crown-attached sutures (sutures and buttons). All parameters were reexamined after 3,6 and 12 months of healing, except for PD,PAL-V and PAL-H measurement at 3 and 6 months. Non parametric analysis was used. The study showed that there were no significant differences in the mean baseline measurements between the treatment groups. After 12 months following surgical treatment, both GTR and CPF procedures enable to gain clinical new attachment i.e.PD reduction 3.750 ±1.603 mm and 2.167± 0.718 mm, PAL-V gain 3.417 ±1.782 mm and 1.750 ±0.754 mm and PAL-H gain 4.667 ± 0.985 mm and 2.333 ± 1.435 mm, respectively. Probing depth and probing attachment level were significantly improved in both groups when compared with baseline. The change in parameters when compared between two surgical procedures, GTR molars showed significant improvement in keratinized gingival width, probing pocket depth as well as vertical and horizontal attachment level of the interradicular osseous defect than CPF molars. About 66.67% of the sites treated with the GTR technique showed complete clinical resolution of the furcation problem. CPF therapy reached the same treatment goal in about 41.67% of the cases treated. The guided tissue regeneration appears to be more effective in promoting "regeneration"than coronally positioned flap.

Key Words : Polytetrafluoroethylene, guided tissue regeneration, coronally positioned flap, periodontal disease/therapy, furcation therapy.