Title: Effect of Topical Application of Doxycycline on Pulp Revascularization in Replanted Immature Dog Teeth

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Introduction: Previous studies have shown that in reimplanted immature teeth, pulp revascularization is relatively low. This study investigated the effect of topical doxycycline on pulp revascularization in replanted immature dog teeth.

Materials & Methods: In this experimental study, 32 immature anterior dog teeth with 3-4 month age were extracted and kept in normal saline for 30 min. In group I, 16 teeth were replanted and in group II, 14 teeth were soaked in doxycycline for 5 min (1mg/10 cc saline) and then replanted. The observation time was 6-8 weeks. Next, the dogs were sacrificed using vital perfusion method. After that, the teeth with surrounded tissue were removed in tissue blocks, histologically processed and evaluated by a pathologist and a microbiologist for presence of capillary in the lumen, odontoblastic layer, inflammation and microorganism. The results were statistically analysed using Mann-Whitney test.

Results: It was revealed that topical application of doxycycline increased pulp revascularization (P=0.017) and frequency of new odontoblasts (P=0.035) and also decreased inflammation (P=0.027) in the pulpal lumen.

Conclusion: The present study showed that topical treatment with doxycycline (1mg/10ml saline) for 5 minutes facilitated pulp revascularization in replanted immature teeth after replantation.

Key words: Doxycycline, Revascularization, Replanting.

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