

Republic of Iraq
Ministry of Higher Education
And Scientific Research
University of Baghdad
College of Dentistry



Revascularization of Pulpless Immature Permanent Anterior Teeth

A Thesis

Submitted to the Council of the College of Dentistry/
University of Baghdad in Partial Fulfillment for the
Requirement for the Degree of Master of Science in
Pediatric Dentistry

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Iraq- Baghdad

2017 A.D

1439 A.H

Abstract

Background: Endodontic regeneration is a new approach for management of necrotic immature teeth that allow root maturation and apical closure.

Aims of the study: This study was conducted to evaluate the effect of revascularization of immature permanent anterior teeth using calcium enriched mixture cement on lengthening of the root, formation of an apex by narrowing of the canal apically and thickening of root wall.

Materials and methods: Thirty-two necrotic immature permanent anterior teeth in twenty-five children aged (7-14) years were treated with revascularization and evaluated clinically and radiographically after three and six months.

Treatment started with clinical examination and diagnostic radiograph then access opening and irrigation with 5% sodium hypochlorite + 3% hydrogen peroxide was done, the canals dried and triple antibiotic paste (400 mg metronidazole + 250 mg ciprofloxacin + 50 mg minocycline) was applied in the canals for two weeks.

In the second visit if signs and symptoms resolution was confirmed, the treatment continued, otherwise, irrigation and application of antibiotic paste was repeated for another two weeks. After two weeks the antibiotic paste washed from the canal by normal saline, then irrigation with 5% sodium hypochlorite + 3% hydrogen peroxide, the canals were dried and intracanal bleeding by size 50 K-file was stimulated, bleeding controlled with cotton pellet 3 mm apical to canal orifice, after 15 minutes clot stability confirmed with cotton pellet, calcium enriched mixture cement applied over the blood clot to the level

of canal orifice, and glass ionomer restorative material applied to provide double seal. Patients were recalled after 3 and 6 months for clinical and radiographical evaluation.

Results: Reduction in the mean of diameter of apices and periapical dimensions of lesions, and increase in the mean of length of roots and thickness of walls were found to be highly significant in both readings of 3 and 6 months.

Conclusion: Revascularization using calcium enriched mixture cement as a capping material provides favorable outcomes. Revascularization is an effective treatment for immature necrotic teeth, which in addition to resolution of signs and symptoms adds the advantages of continuation of root maturation, reduction of apices sizes, lesion sizes, and increase in length and thickness of the root walls.