

Clinical and Radiographical Evaluation of Amalgam and Mineral Trioxide Aggregate as a Retrograde Filling in Periapical Surgery (A Comparative Study)

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By

Mayada Madhi Al Douri

B.D.S.

Supervised by

Assist Prof .Dr. Anwar A. Al --Saeed

B.D.S., M.Sc.

Abstract

This study was designed to compare between a commonly used Zinc free amalgam with Mineral Trioxide Aggregate (MTA) which is a new material used recently as a retrograde filling in surgical endodontics.

A follow up study of twenty patients, eleven were females, nine were males, from 12-36 years old, with forty upper central incisors and chronic periapical lesions, each patient has two central incisors with two separated periapical lesions, the right side was apically filled with Zinc free amalgam and named as a control group (Group A), and the left side was filled with MTA as a study group (Group B).

All patients were recalled within three months and six months, and subjected to clinical and radiographical examinations, to evaluate the healing process of both groups; and to compare the effect of various factors on the success rate in both groups.

Clinically the study shows three failure cases (7.5%), one case (2.5%) was objectively failure which shows sinus formation in Amalgam group and two cases (5%) were subjectively failure, which shows pain and tenderness, one case in each group.

Radiographically, the study reported a remarkable bone formation 27 cases (67.5%) fifteen cases in MTA group and twelve cases in amalgam group after six months. While 10 cases (25%), showed delayed bone formation, four cases were in MTA group and six cases were in amalgam group, and three cases (7.5%) were showed enlargement in the size of

radiolucency, one case in MTA group and two cases in amalgam group.

According to the follow up during the six months, the MTA group showed higher successful rate than Amalgam group, but statistically it was not significant. Percentage failure in group A was 10% and group B was 5%.

Regarding the effect of various factors on the healing process in both groups, the study showed that no significant correlation of the gender on the healing process in both groups. Also, all the failure cases were found in the age group (10-19) years old, while the age group (30-39) years old showed (%100)success in both groups (A and B).

The study showed that the best results were in patients who had failure in root canal filling in comparison to the failure and delay healing cases that were in patients exposed to trauma in both groups.

The study recorded that the success rate was higher in patients who did not have a labial sinus formation and intact cortical bone without perforation and seems to be better in MTA group.

Regarding the measuring of the surface area of the bony defect, and the mesio-distal dimension and suprio-inferior dimension by the radiograph, the cavity area were decreased in MTA group much faster than that of Amalgam group during the follow up period.