4th International Conference on
Prosthodontics

April 19, 2022 | Webinar

Received Date: 29 March, 2022 | Accepted Date: 31 March, 2022 | Published Date: 09 May, 2022

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Effect of injectable-platelet rich fibrin on marginal adaptation of bioactive materials used as direct pulp capping; An experimental animal study

Vital pulp therapy has been known as one of the treatment options to preserve pulp vitality after being exposed by trauma or caries. Aim: This experiment explored the effect of injectable-Platelet Rich Fibrin on marginal adaptation of two pulp capping agents (Mineral Trioxide Aggregate and Bioactive Bone Graft). A total of 64 teeth were used out of 8 healthy male beagle dogs. The teeth were randomly assigned into four groups, they were exposed and capped with different capping agents. Group A; capped with mineral trioxide aggregate (MTA), Group B; capped with MTA+ i-PRF, Group C; capped with bioactive bone graft (BBG), Group D; capped with BBG+i-PRF. Finally the access cavity was restored with intermediate restorative material (IRM). At each predetermined interval, the dogs were sacrificed (1 month, and 3 months). The samples were then prepared for electron microscopic scanning evaluation. To compare between the gap percentage of four groups at each interval, Kruskal-wallis test; was used. Mann-Whitney U test; was used to pair-wise comparison when Kruskal-wallis test is significant. Bonferroni's correction was utilized for the pair-wise comparisons. Statistical significance was considered at $P < .05$. The data revealed that after one and three months the best values were recorded in groups B (MTA+ i-PRF) and D (BBG+ i-PRF), in relation to the lowest gap area between the capping materials and dentin, followed by group C (BBG), with the least value recorded in group A (MTA). The findings from the current study suggested that i-PRF provided a better marginal adaptation of either MTA or BBG to the pulp and dentin, which improved with time from one month to three months.

Recent Publication:

1. Fava L, Saunders W. Calcium hydroxide pastes: Classification and clinical indications. Int Endod J 1999; 32: 257–282,
2. Hilton T. Keys to Clinical Success with Pulp Capping: A Review of the Literature. Oper Dent 2009; 34: 615–625.
3. Torabinejad M, Hong C, McDonald F, Pitt Ford T. Physical and chemical properties of a new root-end filling material. J Endod 1995; 21: 349–353.

Biography

Nirvana Khalaf Mansour is an endodontic specialist and graduated from Cairo University in 2009 with a bachelor degree. She earned her master degree in endodontic 2016 and doctorate in 2021. She was worked for five years in suez military hospital 2014-2019. And works as Endodontist private practice in Cairo area Egypt and founder of dr.nirvana dental clinic. Currently member of scientific committee of princess Fatma Academy and lecture in ministry of health, Egypt.

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