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(وَأَنْزَلَ اللَّهُ عَلَيْكَ الْكِتَابَ وَ

الْحِكْمَةَ وَعَلَّمَكَ مَا لَمْ تَكُنْ

تَعْلَمُ وَكَانَ فَضْلُ اللَّهِ عَلَيْكَ

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Effectiveness of a New Irrigation System in Cleanliness of the Root Canal

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Introduction

Introduction

Root canal irrigation plays an important role in the debridement and disinfection of the root canal system and is an integral part of root canal preparation procedures. The presence of debris on the prepared root canal surfaces prevents efficient removal of microorganisms, which is one of the major goals of thorough debridement of the root canal system.

There are many techniques with different devices used for irrigation of the root canals. The use of injection syringe with a 27-gauge needle have been shown to be effective in the debridement of the coronal two segments of the canals, but less effective in the apical segment. Even after irrigation with a specially developed needle, which was perforated at the sides and closed at the end, placed within 1 mm of the working length, it was noted that a large amount of debris and smear layer remained in the apical region of the root canals in addition to the increased possibility of extrusion of the irrigation solutions to the periapical tissue because the needle tip is so close to the apex.

Ultrasonic devices have been developed for root canal irrigation. Even with ultrasonics, the smear layer was retained in the apical region of the canals. It was reported that the smear layer was removed from the apical segment as well as the coronal two segments by using size 15 file energized by ultrasonic agitation. However, excess cutting of the canal dentin and extrusion of the irrigation solution beyond the apex were matters of concern. A system was developed that works on the basis of pressure-suction technology where the irrigant is automatically drawn from the attached syringe and aspirated into the canal. In addition to the complicated

system; it showed inferior cleaning properties in the coronal and middle segments of the canal.

Recently, a new irrigation system, called EndoVac, based on the technology of apical negative pressure, for the removal of debris from the apical portion as well as minimizing the extrusion of irrigant beyond the apical foramen has been developed. EndoVac has been described a simple irrigation system which has a delivery/evacuation tip attached to a syringe of irrigant and the high speed suction of the dental chair. Very few studies, however, have studied the cleaning efficiency of the system. Thus, the purpose of this study was to evaluate and compare the effectiveness of the EndoVac system and needle irrigation in the debridement of the root canal.



Review of Literature