

Endodontic Management of a Tooth with Persistent Intracanal Drainage Using Laser: A Case Report

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ABSTRACT

Aim: The aim is to report a case of large periapical lesion in maxillary lateral incisor treated using diode laser disinfection

Summary: One of the major reason for failure of root canal treatment are microorganisms associated with Apical periodontitis ,despite of all the primary measures and disinfection protocol, failure of endodontic treatment occurs either due to reinfection, substantial regrowth or resistant microorganisms. Laser root canal disinfection is one of the effective method since it was deeper penetration and ability to destroy wide range of microorganisms. This article reports a case of tooth with periapical lesion and weeping canals despite of intracanal medicament placement, which eventually subsided by diode laser canal disinfection.

Keywords: Persistent intracanal drainage, Laser, Root canal treatment, Endodontic management

INTRODUCTION

Apical periodontitis is the most common pathological condition affecting teeth. It is basically due to the microbial invasion in the pulpal tissue resulting in initiation and progression of apical periodontitis. The primary objective of endodontic treatment is to restore the tooth non surgically, however due to alterations of teeth in terms of canal morphology and nature of various microorganisms, it is challenging to achieve complete root canal disinfection .Many microorganisms such as nucleatum Ssp.Vincentti, Enterococcus faecium, Enterococcus faecalis, C.albicans and hence the use of calcium hydroxide alone is uncertain, a lot of studies have

promoted to investigate complementary techniques that could be used in addition to calcium hydroxide. In recent years, laser can be effectively used to eliminate the microorganisms. According to literature laser is effective against microorganism in the main canal, lateral canal as well as in the dentinal tubules. This clinical case presented in the report discusses a successful endodontic treatment of an upper lateral incisor which exhibited a large periapical lesion and persistent intracanal drainage even after two sittings of intracanal dressing placement. Hence, the use of 940nm diode laser which is known for its ability to penetrate deep in the dentinal tubules was initiated.

CASE REPORT

A 30 years old male reported to the department of conservative dentistry and endodontics with pain in the upper left front teeth region since two months .On investigation the patient gave the history of incomplete endodontic treatment which was initiated 6 months back .On clinical examination dislodged restoration and tender on percussion was present. On radiographic examination an incomplete endodontic treatment along with a large periapical lesion was present fig 1.

Endodontic treatment:

Prior to beginning of the treatment, an informed consent of the patient was taken. Endodontic therapy was initiated under local anesthesia and rubber dam isolation. The access cavity was refined with endo access bur A1064 (Dentsply) Fig 2. A large amount of intracanal drainage was observed, which was controlled by

copious irrigation with sodium hypochlorite and normal saline. The working length determination was done using apex locator (J Morita) The canals were prepared to size 30 6% using rotary protaper universal (Dentsply) along with copious irrigation with 5.25% sodium hypochlorite and normal saline followed by EDTA activation with Endoactivator (Dentsply) and a final rinse of normal saline .A calcium hydroxide intracanal medicament was placed for 1 week .After a week ,the intracanal drainage was still present, a second dressing of calcium hydroxide was placed ,as the patient with no clinical symptoms ,no medication was prescribed and the patient was scheduled for the next appointment. A week later, during the third visit, the tooth was accessed; persistent intracanal drainage was still present despite of patient having with no clinical symptoms. Fig: 3 A diode laser canal disinfection was planned .Diode laser of 940nm on continuous mode, EZ200 end firing tip 200mm diameter was utilized with power 0.8W.Two sittings of laser disinfection were performed followed by Fig 4: obturation with gutta percha and Sealapex sealer ensuring the complete dryness of the canals .An two months follow showed no clinical symptoms and reduced periapical radiolucency.

DISCUSSION

This case report aimed to discuss the success achieved by the use of laser as a complementary technique that can be used to eliminate microorganisms thus aiding a near to complete disinfection.

Despite of a lot of evolution and significant improvement in rotary systems of instrumentation and use of irrigation activation ,the effectiveness is still limited .According to literature ,the bacterial contamination of the root canal system deep in the dentinal tubules are the main contributing factors to the long term failure of endodontic treatment. Siqueria et al evaluated the efficacy of sodium hypochlorite at different concentration and concluded that sodium hypochlorite is

effective in eliminating microorganisms in canal lumen. However; they remain viable inside the dentinal tubules. Estrela, Pecora et al in their study evaluated the effectiveness and time required for calcium hydroxide to act against microorganism's. The conclusion to their study was that the action of calcium hydroxide is limited to specific organisms in the canal. Laser has been proven to act in deeper areas in the dentinal tubules .A study revealed that when both calcium hydroxide and laser are used together, the success can be enhanced. In this case both calcium hydroxide and diode laser were used for canal disinfection which showed positive changes clinically and radiographically.



Fig 1: Preoperative

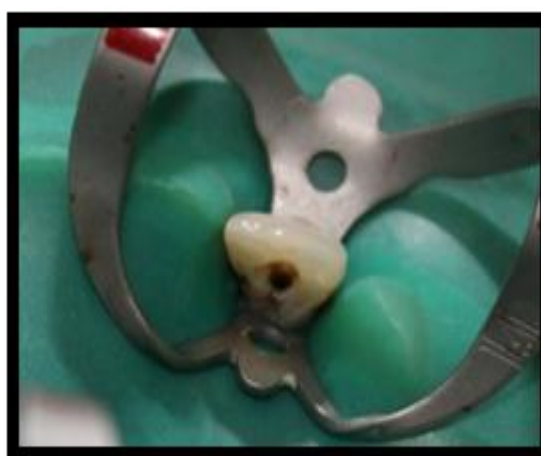


Fig2: Access opening

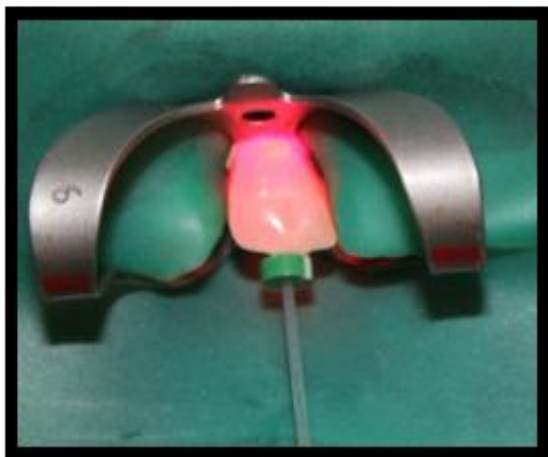


Fig3: Diode laser in place



Fig4: Post-operative



Fig6: Follow up 3 months

CONCLUSION

In teeth with large periapical lesion with persistent intracanal drainage, the use of both calcium hydroxide and laser

collaborate to the success of endodontic therapy.

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