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One Visit Endodontic Treatment Of Maxillary Central Incisors
(Case Report)

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ABSTRACT

Endodontic treatment should be simple, predictable and time saving. One visit endodontic treatment is a root canal treatment process is completed in one visit. This gives the advantage to minimize the risk of microorganisms in root canals, as well as saving time for the treatment more tolerable by the patients. A 22 years old female patient complain about pain in maxillary central incisors since 2 week ago. There was a history that teeth have been restored one month ago. Clinical examination teeth 11 and 21 with Electric Pulp Test was positive, percussion, palpation, mobility was negative. Radiographic examination showed no periapical lesion. Diagnosis was pulpitis irreversible. One visit endodontic treatment has been done in maxillary incisors central. Final restoration was done by placing a fiber post and all crown porcelain. One visit endodontic treatment can be successfull if it was suitable with the case selection

Key words : pupitis irreversible, case selection, one visit endodontic

INTRODUCTION

Irreversible pulpitis is classified into two categories, asymptomatic and symptomatic. In asymptomatic irreversible pulpitis, the teeth do not show any pain or symptom, but the clinical findings show deep caries lesion or significant tooth structure loss which if left untreated, it would arise the symptom or even worse, become non vital. Meanwhile, the pain which develop in symptomatic irreversible pulpitis sometimes shows a form of emergency therefore needs to be treated immediately. The teeth manifest an intermittent or spontaneous pain and the episode could be worsen if the teeth are stimulated by cold stimuli, although the stimuli have been removed[1]

The aim of root canal treatment is to eliminate the bacteria within the root canal so that healing process can be achieved. Many researches show it is impossible for operator to create a definite sterile environment in the root canal, even though the processes of

cleaning, shaping also irrigation using disinfectant and antiseptic agent have been done. The microorganisms within the root canal are able to multiply rapidly if the canal being left empty during 2-4 days.[2-4]

Many operators eliminate or prevent the reinfection and contamination of the bacteria within the root canal using calcium hydroxide as intervisit sterilization agent. However, many studies show that calcium hydroxide is failed to create a sterile environment in root canal or to promote the healing process. It is still debatable what caused the failure to be happened, because neither the intervisit dressing nor the negative culture test result did not guarantee the healing process to be successfully achieved.[2]

The other approach which often used to eliminate the possibility of microorganism recontamination in root canal is by doing the canal obturation compactly right after the canal preparation and irrigation in the same visit[3]. Moreover, the compact obturation establishes a certain environment where the microorganisms lacking of nutrition and space to grow[4,5,6]. The advantage of one visit root canal treatment is the time efficiency, patient convenience, and the capability of avoiding the possibility of bacterial recontamination during the each visit[7].

CASE REPORT

A 22-years-old female attended Conservative Dentistry Postgraduate Clinic, Dental Hospital, Faculty of Dentistry, Universitas Padjadjaran (RSGM) ,complain about throbbing pain in maxillary central incisors since 2 week ago. There was a history that teeth have been restored one month ago. Without any remarkable medical history.

The physical and vital sign examination shows blood pressure 106/74 mmHg, pulses 76x/min, and respiration 18x/min. Extraoral examination revealed symmetric face, normal lip tonus, normal TMJ, and normal submandibular left and right lymph nodes.

Clinical examination of the teeth 11 and 21, showed old composite restoration in mesial and distal side, respectively. The Electric pulp test exhibited positive result for both of the teeth while in percussion, palpation, and mobility tests are negative.

The diagnosis of both teeth 11 and 21 are irreversible pulpitis (AAE, 2013). The prognosis of the teeth are good, because there are single roots, with straight canal, the teeth position do not complicate the treatment, patient's mouth opening is normal, and the

Figure 1. Initial clinical

Figure 2. Preoperative diagnostic radiograph

	Gigi 11	Gigi 21
Crown	Radioopaque from email to pulp in mesial and distal	Radioopaque from email to pulp in mesial and distal
Root	Straight	Straight
Periodontal membrane	Normal	Normal
Lamina dura	Normal	Normal
Periapical	Normal	Normal

patient is cooperative. The treatment plan for 11 and 21 consists of root canal treatment, one visit pulp extirpation, fiber post, and all porcelain crown restoration.

CASE MANAGEMENT

On the first visit, following the subjective, objective, radiograph examination, diagnosis process, and treatment planning had been thoroughly done, patient signed the informed consent and filled the anesthesia pre-evaluation form. Aseptic measure was done using 10% povidone iodine swabbed on buccal mucosa surface of 11 and 21, then the xylestein anesthetic agent was infiltrated on mucobuccal fold of 11 and 21, 1 ml per tooth.

The operation area was isolated using rubber dam, followed by the access opening using round bur and endoaccess bur (Endostrip Jet, Dentsply) from the coronal through the pulp chamber. After that, the pulp was extirpated using the extirpation file #10 (barbed boarch). The extirpation needle was inserted into the canal and rotated clockwise, then the needle was slowly withdrawn until all the pulp was removed.

When all the pulp tissue was completely removed the root canal was irrigated with 2.5% NaoCl without any pressure until no debris was left, then continued with drying the canal using sterile paper point. Canal exploration was done using k-file #10 and #15 on both teeth. The canal was prepared with crown down techniques, using *Protaper Universal Rotary* (Protaper Universal, Dentsply), initiated file with protraper S and then SX which had been lubricated with lubricating gel (Glyde, Dentsply Maileffer), inserted along 2/3 working length to enlarge the canal. Working length was established with initial file #10 using apex locator (ProPex, Pixie, Dentsply Maileffer). Working length for 11 and 21 were 21mm and 22 mm, respectively (Figure. 6).

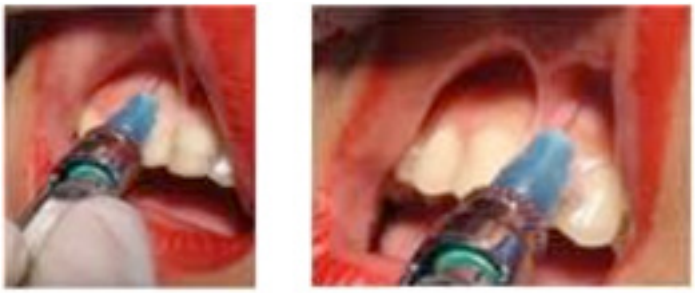

Figure 3. Local anesthetic.

Figure 4. Access cavity.

Figure 5. Pulp tissue removed.

After the working length was obtained, the canal was prepared using file S1, followed by S2, F1, F2, F3 consecutively on both teeth (figure.7)

Canals were irrigated between every file change activated by Endoactivator (Endoactivator, Dentsply) (Figure 8). On the last irrigation, 2,5% NaOCl was used, followed by aquadest, and 2% chlorhexidine. Canal was redried using suction tip and sterile paper point, and and the obturation trial was done using 21mm Master Apical Cone F3 for the teeth 11 and 22 mm Master Apical Cone F3 for the teeth 21, confirmed by radiograph photo.

Figure 6. Determine working length.

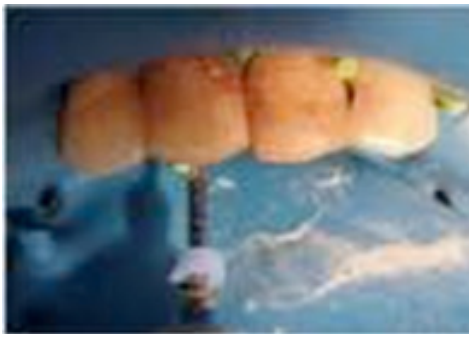

Figure 7. Preparation with F3 file.

Figure 8. Activated with Endoactivator.

The radiograph showed that the Master Apical Cone was already adequately adapted. The canal then obturation using lateral condensation technique, and sealed using Endomethasone sealer. Following the Master Apical Cone F3 insertion into the canal, spreader was used to condense the guttapercha laterally to give more space for guttapercha accessories. Procedure was repeated until spreader could no longer be inserted into the canal. Guttapercha was cut right below the orifice, then the cavity was cleaned from

Figure 9. Trial foto with guttapercha.

Figure 10. Obturation of the canal with gutta-percha.

Figure 11. Radiography control.

the excess sealer and guttapercha, then sealed with Glass Ionomer Cement (GC, Gold Label). The obturation was evaluated using radiograph, the radiograph showed a hermetic obturation (Figure 10). After that, the patient was instructed to visit the clinic in 7 days later for control.

Figure 12. Try in fiber post.

Figure 13. All porcelain crown.

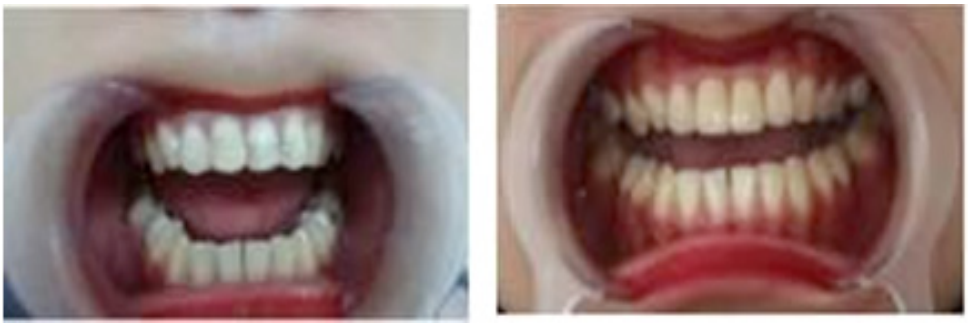

Figure 14. Before treatment (left) and after treatment (right).

On the second visit, post root canal treatment control was elaborated. Patient had no complaint, the percussion, pressure, palpation, and mobility test showed negative results. The adjacent tissue was normal and radiograph imaging showed hermetic obturation with no periapical abnormalities) (Figure 11).

The root canal treatment was followed by fiber post restoration and all porcelain crown (Figure. 12, 13, 14)

DISCUSSION

On this particular case, one visit endodontics was chosen to manage the pulpitis irreversible teeth with consideration of single canal tooth with no periapical lesion from the radiograpic image.

One visit endodontics was indicated for cases of pulpitis irreversible, necrotic pulp with no periapical lesion, tooth with less difficulty for cleaning and shaping, patient who want the treatment to be finished immediatesal[8,9]

The advantages of one visit endodontics are (1) Lessen the amount of treatment visits thus increase patient convenience, (2) The ability to avoid possibilty of bacterial recontamination caused by temporary restoration leakage between visits (3) Decrease patient anxiety and fear (4) More efficient for operator and (5) Less cost for patient. [8-10]

Rotary instrument shorten the operator working time compared to the manual instrument. ProTaperUniversial is a rotary instrument used for canal preparation with crown down technique. Root canal preparation using crown down techniques has many advantages such as ease of debris and microorganisms removal toward coronal area, ability to maintain the canal shape, and prevent the fracture of root canal .[1,10,11]

Canal irrigation using combination of 2.5% NaoCl and 17% EDTA has antimicrobial property and the ability to dissolve organic and inorganic debris. The combination of 2.5% NaoCl and 17% EDTA are ideal to remove the remnants of pulp tissue, debris, and smear layer within the root canal. The other irrigation agent, 2% Chlorhexidine, which has wide spectrum antimicrobial property, was used as final rinse right before the canal obturation[10,12].

Obturation was done using guttapercha Master Apical F3 file and sealed with Endomethasone sealer. The treatment was followed by control 7 days later after the obturation. Patient had no complaint, the percussion, pressure, palpation, and mobility test showed negative results. The adjacent tissue was normal and radiograph imaging showed hermetic obturation with no periapical abnormalities. The root canal treatment was followed by fiber post restoration and all porcelain crown.

CONCLUSION

One visit root canal treatment can be chosen as management for case of pulpitis irreversible with no periapical abnormalities.

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