Management of Necrosis Teeth (Case Report)

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Abstract. Root canal treatment (RCT) is a part of endodontic treatment. There are three stages of treatment that must be carried out on RCT, namely preparation, sterilization, and obturation of the root canal. Endodontics is a branch of dentistry that deals with the prevention, etiology, diagnosis and therapy of diseases affecting the pulp, roots and periapical tissues of teeth. A 19-year-old female patient came with complaints of discolored and broken upper right front teeth, so that the patient felt less confident. On objective examination, there was a discoloration that was dark brown in color on tooth 11. Sondation: -, Percussion: -, Palpation: -, CE: -. The treatment plan that will be provided were root canal treatment for tooth 11, control and evaluation. After 6 consecutive visits started from indication and devitalization of pulp to control and evaluation, in less than 2 months, the treatment went on successfully.

Keywords: Pulp necrosis · Root canal treatment · Treatment success

1 Introduction

The pulp tissue consists of nerves, vasculature, and also odontoblast cells where these things have the ability for a defensive reaction, namely healing if an inflammation occurs. If there is inflammation of the pulp tissue, the process will continue to pulp death/necrosis. The more extensive damage to the pulp tissue will cause the remaining healthy pulp tissue to become less. Pulp necrosis can be partial or complete. In partial necrosis can show symptoms of irreversible pulpitis [1].

Root canal treatment is a part of endodontic treatment. Endodontics is a branch of dentistry that deals with the prevention, etiology, diagnosis and therapy of diseases affecting the pulp, roots and periapical tissues of teeth [2]. The goal of root canal treatment is to keep the tooth functioning properly. The root canal treatment consists of several stages where the main stages are root canal preparation, sterilization and canal filling (obturation), the success of root canal treatment can be seen from these stages. The preparation steps that are not clean can cause treatment failure [3].

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2 Case Report

A 19-year-old female patient came to RSGM UMY with a complaint that her right upper front tooth had different color and felt a bit achy, so that the patient felt less confident. This situation was felt about 1 year ago. The patient had never had any treatment on these teeth. During elementary school (approximately 9 years ago) the patient fell from a bicycle, causing trauma to her upper front teeth (Fig. 1).

On objective examination, there was a discoloration, which was brown-black in color on the 11th tooth. Sondation: -, Percussion: -, Palpation: -, CE: -.

Subjective and objective examination showed that the diagnosis of tooth 11 was partial pulp necrosis. The treatment plan that will be provided includes IEC, root canal treatment for tooth 11, control and evaluation.

The stages of root canal treatment for tooth 11 include:

Visit 1: Indication and devitalization of the pulp (06 February 2021).

Tooth 11 underwent open access and the provision of devitec material for pulp revitalization because at the time of Oen access, the patient still felt achy.

Visit 2: Measurement of working length (11 February 2021).

The working length measurement on tooth 11. Length of tooth on X-ray = 22.7 mm. Approximate working length 22.7–1 = 21.7 mm. When checking the working length using the Electronic Apex Locator (EAL) it showed 0.5 while the file length was 19.5 mm using K-File #15 (25 mm). So it can be concluded that the working length of the teeth 11 = 19.5 mm. Subsequently, the root canal was dressed using a dressing material, namely cresophene, and a temporary filling was performed on the palate using a cavit.

Visit 3: Biomechanics Preparation (18 February 2021).

During this visit, biomechanical preparations were carried out using a stepback technique using K-File #20 as as IAF with a working length of 19.5 mm (Fig. 2).

After the biomechanical preparation was carried out according to the table, the root canal was then dressed using a dressing material, namely cresophene, and a temporary filling was performed on the palate using a cavit.

Fig. 1. Tooth 11 before RCT

Nomor file	Panjang kerja	Rekapitulasi	
IAF # 20	19.5 mm	Irigasi NaOCl	
25	19,5	Irigasi + File #	20 (19,5)
30	19,5	Irigasi + File #	25 (19,5)
MAF #35	19,5	Irigasi + File #	30
		Irigasi + File	#35
40	18,5	Irigasi + File	#40
45	17,5		
H file	19,5	Irigasi	

Fig. 2. Tabel of biomechanic preparation

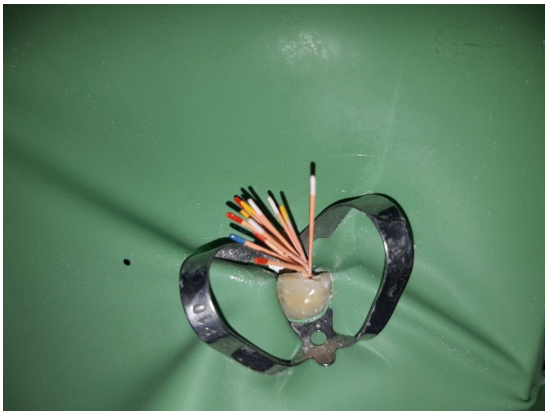

Fig. 3. Obturation on tooth 11

Visit 4: Bacterial Test (25 February 2021).

At this visit, a bacterial test was carried out with the result (-). Subsequently, the root canal was dressed using a dressing material, namely cresophene, and a temporary filling was performed on the palate using a cavit.

Visit 5: Obturation (12 March 2021).

During this visit, obturation was performed using gutta percha #35 with a working length of 19.5 mm and after obturation, it was followed by lining using SIK Fuji I and temporary filling using cavit (Figs. 3 and 4).

Visit 6: Control (18 Maret 2021).

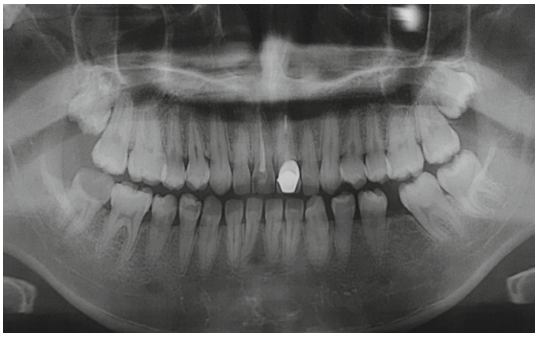

Fig. 4. Radiograph on post-obturation

3 Discussion

In this case, root canal treatment was performed because the tooth had partial pulp necrosis. The purpose of root canal treatment is to clean the infected pulp, followed by shaping the root canal in such a way that it can accept the filling material that covers the root canal system. This is intended to prevent infection or further abnormalities or repeated infections [4].

Pulp necrosis is the death of the pulp, which can occur partially or completely due to inflammation or trauma. Pulp necrosis is caused by trauma, bacteria, irritants from restorative materials, or ongoing inflammation. Bacteria or microorganisms have an important role in pulp and periapical disease. Root canal treatment for pulp necrosis has 3 stages, the first stage is biomechanical preparation of the root canal where at this stage cleaning and formation of the root canal is carried out by opening access to the pulp chamber from the corona, the second stage is sterilization, namely irrigation and root canal disinfection and the third stage. is root canal obturation [5]. In this case material selected were cresophene and chlorhexidine.

The root canal preparation technique in this case uses the step back technique, which in this technique has the advantage of being effective in cleaning the root canal, facilitating root canal filling, during the obturation process the filling will be denser. This situation is caused by the spreader reaching close to the apex thereby reducing leakage. Meanwhile, the drawback is that it takes a long time, the obturation process is prone to gaps either vertically or horizontally [6].

Cresophene is one of the most widely used dental materials for sterilization of root canals prior to obturation. In this case, Cresophene was used as a root canal sterilizer because this material contains parachlorophenol, dexamethasone, thymol, and camphor. Parachlorophenol hasstrong bactericidal properties; dexamethasone as anti - Inflammatory, while thymol and camphor are prepared as antiseptics. Apart from being a root canal sterilizer, Cresophene is also often used as a sterilizer in deep cavities [4].

4 Conclusion

Operators must be selective in choosing disinfection and irrigation materials for root canal treatment because these materials determine the overall success of endodontic treatment. Materials used in root canal treatment must have biocompatibility requirements in which these materials can be accepted by the body. In this case disinfection and irrigation material selected were cresophene and chlorhexidine. In addition, irrigation materials and root canal sterilization must have ideal properties, namely being able to become antimicrobial in root canal treatment so as to minimize the occurrence of repeated infections.

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