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Clinical Image
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Regenerative Endodontic Treatment of Mandibular Immature Premolar

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Clinical Image

The purpose of pulp treatment for infected immature permanent teeth is to eliminate the infection and also maintain the tooth structure intact in order to preserve optimal function. Regenerative endodontic treatment was preferred on the treatment of non-vital immature teeth instead of traditional apexification treatments in contemporary dental procedure [1]. Because, traditional approaches of calcium hydroxide apexification and apical barrier techniques with Mineral Trioxide Aggregate (MTA) apexification has some disadvantages such as the number of appointment is too much, and consequently the patient cooperation is reduced and increased risk of root fraction [2,3].

A 12-year-old girl in systemically healthy presented to the Akdeniz University, Faculty of Dentistry, Department of Pediatric Dentistry in December, 2017 with a complaint of pain that began with cold food and drinks on her lower left second premolar tooth. It was observed no sensitivity to electrical pulp test and no sensitivity to palpation and percussion and also excessive material lost on clinical examination. Radiographic examination showed open apex and periodontal space widening and loss of lamina dura due to infection (Figure 1). The diagnosis was consistent with pulp necrosis and apical periodontitis. The patient's parents were informed about all the possible treatment modalities, such as calcium hydroxide apexification procedure, single step MTA application, and regenerative endodontic procedures. The parents selected regenerative procedures. A written informed consent was obtained.

The pulp chamber was accessed with a diamond bur after after rubber dam isolation (Figure 2). The necrotic wide canal was disinfected with 3% NaOCl solution and dry canals with paper point. Low concentration of triple antibiotic paste (consisting of ciprofloxacin, metronidazole and

Figure 1: An orthopantograph belong to first appointment of the patient.

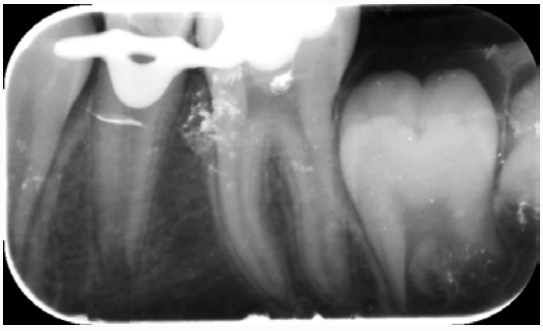

Figure 2: A periapical radiograph at the start of the treatment.

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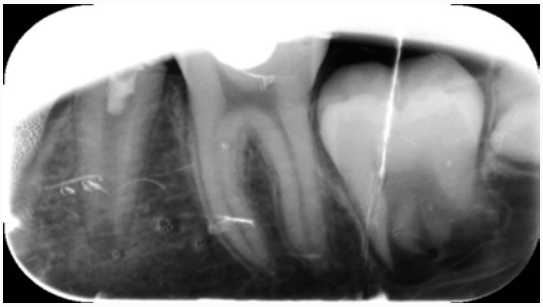

Figure 3: A periapical radiograph at the second appointment.

Figure 4: A periapical radiograph after five months.

Minocycline) was placed at the first appointment. After 2 weeks, gentle irrigation with 20 ml of 17% EDTA was performed and then apical tissues were lacerated and bleeding was induced. A blood clot was allowed to form at the level below the cementoenamel junction and MTA was placed over the blood clot. The MTA was covered with a thin layer of modified glass ionomer cement (Figure 3). Permanent restoration was performed with composite resin one week later. The patient was followed-up for five months. During this period, the tooth no 35 clinically asymptomatic, showed radiographic healing of the periapical lesions and root development (Figure 4). Clinical and radiographic evidence showed successful revascularization treatments of immature necrotic permanent teeth with apical periodontitis. However, case reports with long term follow up are necessary to make meaningful contributions in the literature.

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