Repair of Untreated Horizontal Root Fracture: A Case Report

Horisontal Kök Kırgının Kendiliğinden İyileşmesi: Olgu Raporu

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ABSTRACT

A spontaneously healed horizontal root fracture in a maxillary central incisor of an adult male has been reported in this case presentation. The patient went through an accidental trauma, which occurred approximately 20 years ago. This fracture was found radiographically. A distinct radiolucent line separated fractured pieces and margins were rounded. The tooth was asymptomatic; there was no discoloration of the crown, no mobility, no tenderness to percussion or palpation. This case is an example of spontaneously healed fracture roots.

ÖZET


KEYWORDS

Horizontal root fracture, Spontaneously healing

Anahtar Kelimeler

Horizontal kök kırığı, Spontan iyileşme
INTRODUCTION

Intra-alveolar root fractures occur less frequently compared with other dental injuries and account for probably less than 3% of all dental traumas. It was reported that 78% of root fractured teeth healed whilst pulp necrosis and inflammatory changes occurred in 22% of cases.

Healing outcome after root fracture can be divided into three groups: 1) healing with hard tissue, 2) healing with connective tissue between the fragments, 3) healing with interposition of granulation tissue. Several factors may influence the type of healing. These factors include the stage of root development, mobility and dislocation of the coronal fragment and diastasis between fragments. Furthermore, the healing of horizontal root fractures depends on survival of the pulp and non-communication between the fracture and oral cavity.

Generally, fractured roots are diagnosed shortly after the injury but occasionally they are identified at subsequent routine dental examinations. In the treatment of root fractures, it was recommended that the displaced coronal fragment should be repositioned and then splinted. However, it was reported that splinting and no splinting may not influence healing in non-displaced teeth. In addition, there are cases of horizontal root fractures, which healed without any treatment.

The present paper reports a case of horizontal root fracture that healed spontaneously without treatment.

CASE REPORT

A 28-year-old male came to the Department of Endodontic with the complaint of crown fracture of maxillary right central incisor (Fig. 1). The patient’s complaint was an aesthetic problem. The type of the injury was an uncomplicated crown fracture, as it involved enamel and dentin without pulp exposure. The patient reported that a marble had struck to his central incisors approximately 20 years ago. As no pain, discoloration or other symptoms relating to his tooth occurred, the patient was not referred to a dentist at that time.

In the clinical examination, tooth was asymptomatic; there was no discoloration of the crown, no mobility, no tenderness to percussion or palpation. The tooth exhibited positive reaction to electric pulp test and cold tests. The periapical radiograph showed horizontal fracture in the middle third of the root (Fig. 2). A distinct radiolucent line separated fractured pieces and margins were rounded. Calcified tissue deposition was observed next to the fracture line of both the root segments. It is presumed that the root fracture occurred at the same time because the patient has not remembered any other traumatic injuries to the maxillary anterior region. Only the mesial-incisal corner of the fractured crown was restored with direct application of composite resin (Fig. 3).
DISCUSSION

Root fracture involves the pulp, dentin, cementum, and the periodontal ligament\textsuperscript{11}. Usually, the anterior teeth are involved in dental injuries with the maxillary central incisors being the most frequently injured\textsuperscript{12}. The initial treatment consists of repositioning the coronal segment and then stabilizing the tooth to allow healing of the periodontal ligament supporting the coronal segment\textsuperscript{1}. Following initial treatment of the root fracture the pulpal response can be divided into five groups: 1) fracture healing, 2) pulp necrosis, 3) root canal calcification or obliteration, 4) resorption, or 5) fracture nonhealing\textsuperscript{4}. It is recommended that when the coronal segment has been luxated, the treatment should be semi-rigid stabilization for a few weeks\textsuperscript{11}. In cases involving horizontal root fracture, endodontic treatment should be delayed until signs of pulp necrosis are evident and in those cases requiring endodontic therapy, treatment should be limited to the coronal segment\textsuperscript{12}.

The most desirable outcome after dental trauma is pulpal healing\textsuperscript{11}. When the pulpal damage is moderate, a connective tissue interposition usually occurs in the fracture site\textsuperscript{4}. In this case, healing was likely with interposition of connective tissue. As a distinct radiolucent line separated fractured pieces and margins were rounded. Also the tooth exhibited positive reaction to electric pulp test and cold tests. Although it was no splinted, no loss of vitality of the pulp in the coronal fragment may be explain that severity of the trauma was probably low and there was no displacement of coronal fragment and patient had a tooth with immature root and open apices. The calcified tissue deposition was confirmed next to the fracture line of both the root segments, radiographically.

REFERENCES


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