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CASE REPORT / OLGU SUNUMU

Management of Perforating External Cervical Root Resorption

Evaluation of Admissions and Incidence of Endodontic Treatment of Geriatric Patients in a University Hospital

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Abstract

Introduction: External cervical resorption (ECR) is the loss of dental hard tissue as a result of odontoclastic action; it usually begins on the cervical region of the root surface of the teeth. The etiology and predisposing factors are not very clear. The aim of this case report is to show the management of maxillary right canine diagnosed with ECR.

Case Report: A 54-year old female patient was referred to our clinic with the history of dentin hypersensitivity in maxillary right anterior area. Radiographic examination revealed a radiolucent lesion located on the cervical third of maxillary right canine. The tooth was clinically asymptomatic. The patient did not report any traumatic history. CBCT scans revealed the extent of the resorption cavity and confirmed the diagnosis of the lesion.

Due to perforation of the resorption into the root canal space, the access cavity was opened and temporarily occluded with a gutta-percha point. Then the surgical repair of the resorptive defect was carried out without blocking the root canal with filling material. A mucoperiosteal flap was elevated to clean the granulamatous tissue. The lesion was apparent after complete degranulation of soft tissue. It was repaired with MTA-Angelus (Angelus, Londrina, PR, Brazil), a glass ionomer and a composite resin. The flap was replaced and sutured. Once the ECR cavity was restored, then endodontic treatment was completed in the same appointment. The root canal was obturated with gutta percha and root canal sealer by cold lateral condensation.

Conclusion: In the 9-month follow-up examination, the tooth including ECR defect was completely asymptomatic and functional.

Early detection is necessary for successful management and outcome of ECR. CBCT should be considered for the assessment and/or management of ECR.

Keywords: External Cervical Resorption, Cone-Beam Computed Tomography, Endodontic Treatment

Öz

Giriş: Eksternal servikal rezorpsiyon, diş sert dokularının odontoklastik aktivite sonucu kaybıdır ve genellikle kök yüzeyinin servikal bölgesinde başlar. Etiyolojisi ve predispozan faktörler tam olarak anlaşılamamıştır. Bu olgu bildiriminin amacı; eksternal servikal rezorpsiyonlu üst kanin dişine ait tedavi yaklaşımını sunmaktır.

Olgu Bildirimi: Elli dört yaşında kadın hasta sağ üst ön bölgede dentin hassasiyeti şikayetiyle kliniğimize başvurdu. Radyografik incelemede sağ üst kanin dişinde servikal bölgede radyolusent lezyon saptandı. Diş klinik olarak asemptomatikti ve hastadan alınan anamnezde herhangi bir travma hikayesi olmadığı öğrenildi. Konik ışınlı bilgisayarlı tomografi (CBCT) taramaları lezyon tanısını doğruladı ve lezyon kavitesinin sınırlarını ortaya çıkardı.

Rezorpsiyonun kök kanal boşluğuna açılması nedeniyle endodontik giriş kavitesi açıldı. Kök kanalı geçici olarak güta perka kon ile tıkaçlandıktan sonra rezorptif defektin tamirine başlandı. Granülamatöz dokuyu tamamen temizlemek için mukoperiostal flep kaldırıldı. Bu bölgedeki granülasyon dokusu temizlendikten sonra açığa çıkan rezorbsiyon kavitesi MTA Angelus (Angelus, Londrina, PR, Brazil), cam iyonomer siman ve kompozit rezin kullanılarak onarıldı. Flep kapatıldıktan sonra aynı seansta kök kanal tedavisi tamamlandı. Kök kanal dolgusu; kök kanal patı ve güta perka kon kullanılarak soğuk lateral kondensasyon tekniği ile yapıldı.

Sonuç: Dişin 9 aylık takibi sonucunda asemptomatik ve fonksiyonel olduğu görüldü.

Eksternal servikal rezorbsiyonun başarılı tedavisi için erken teşhis edilmesi çok önemlidir.

Tedavi planlamasında CBCT mutlaka göz önünde bulundurulmalıdır.

Anahtar Kelimeler: Eksternal Servikal Rezorbsiyon, Konik Işınlı Bilgisayarlı Tomografi, Endodontik tedavi

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Introduction

External cervical resorption (ECR) is the loss of dental hard tissue as a result of odontoclastic action; it usually begins on the cervical region of the root surface of the teeth [1, 2].

External cervical resorption (ECR) is one of the least understood types of resorption. This form of external resorption was described by Heithersay [3, 4].

The radiographic appearance of ECR is variable and influenced by the size and nature of the lesion. The lesions may be radiolucent (resorptive phase), radiopaque (reparative phase) or present as a combination of both depending on the stage of the ECR lesion [5-7].

The etiology of ECR remains unclear. There may be etiological factors which have not yet been identified. Previous orthodontic treatment, traumatic injury, internal bleaching, surgery and bruxism are the releated factors with ECR [4].In recent years, new studies have shown that other factors can also be linked to the initiation of ECR. Such as; extraction of a neighboring tooth, malocclusion, playing wind instruments, periodontitis, autotransplantation, transmission of feline viruses to humans , herpes zoster, chemotherapy treatment, the use of bisphosphonates and hypoxia [1, 2, 8-18].

The most commonly affected teeth are maxillary incisors, canines, first molars and mandibular first molars [2, 5, 13].

External cervical resorption (ECR) has different classification. The Heithersay classification of ECR is based on 2-dimensional imaging. The Patel classification is 3-dimensional, based on periapical radiographs and CBCT [7].

Treatment options for ECR depend on the size, nature of the lesion, whether the defect has perforated the root canal system and the restorability of the tooth [1, 19].Accessibility of the resorptive defect is also important. A mucoperiosteal flap may have to be elevated to clean the granulamatous tissue. Before considering surgery, CBCT imaging should be used to locate the lesion accurately and to determine the relationship between the lesion and alveolar bone [20]. The treatment options are; external repair of the resorptive defect with or without endodontic treatment, internal repair and root canal treatment, intentional replantation, periodic review and extraction [5, 19].

This case report presents the management of perforating eksternal cervical resorption.

Case Report

A 54-year old female patient was referred to our clinic with the history of dentin hypersensitivity in maxillary right anterior area. Radiographic examination revealed a radiolucent lesion located on the cervical third of maxillary right canine. The tooth was clinically asymptomatic. The patient did not report any traumatic history. CBCT scans revealed the extent of the resorption cavity and confirmed the diagnosis of the lesion (Figure 1).

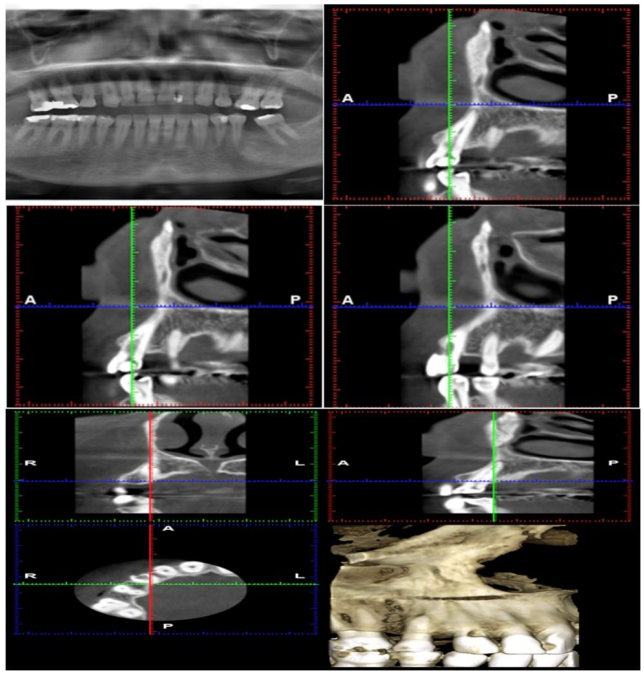

Figure 1. A panoramic radiograph and cone-beam computed tomographic images

Due to perforation of the resorption into the root canal space, the access cavity was opened and temporarily occluded with a gutta-percha point. Then the surgical repair of the resorptive defect was carried out without blocking the root canal with filling material. A mucoperiosteal flap was elevated to clean the granulamatous tissue. The lesion was apparent after complete degranulation of soft tissue. It was repaired with MTA-Angelus (Angelus, Londrina, PR,Brazil), a glass ionomer and a composite resin. The flap was replaced and sutured (Figure 2a-f). Once the ECR cavity was restored, then endodontic treatment was completed in the same appointment. The root canal was obturated with gutta percha and root canal sealer by cold lateral condensation (Figure 3).

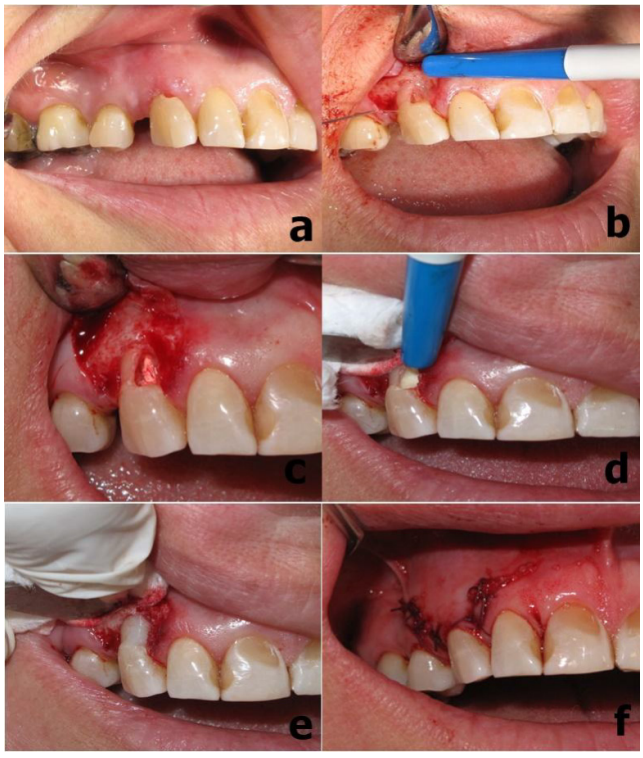

Figure 2. Surgical procedure

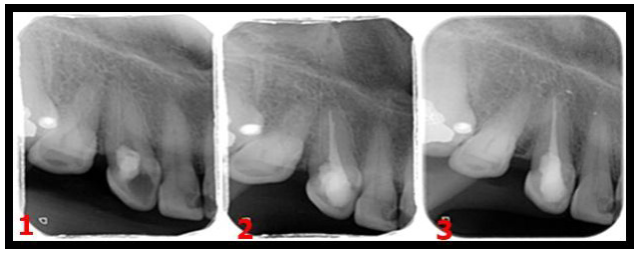

Figure 3. Periapical radiographs

Discussion

Treatment of ECR is a challenge to the clinician. Because ECR defects are often located subgingivally and interproximally. The condition is generally progressive[18]. Different treatment approaches for ECR have been described in the literature. Prognosis of treatment depends on the location,size and accessibility of the lesion.

This report presents a case with ECR. Endodontic treatment was required in this case because ECR perforated the root canal system. The root canal was accessed and occluded by inserting an appropriately sized gutta-percha point to maintain the patency of the canal during the subsequent excavation and restoration of the ECR defect. Once the ECR defect was restored, the mucoperiosteal flap repositioned and endodontic treatment was completed. This approach firstly prevents the unintentional blockage of the root canal and secondly provides a barrier against which the ECR restorative material may be condensed against [19, 21, 22].

Radiography is essential to successful diagnosis of resorption. Cone beam computed tomography (CBCT) has enhanced radiographic diagnosis. The most important advantage of CBCT in endodontics is that it demonstrates anatomic features in 3D. CBCT can provide relevant information on the location and nature of root resorptive defects; although in two-dimensional imaging modalities the location and nature of the root resorptive defects may not be clear [23-28].

ECR has been accurately diagnosed and treated over the last decade; due to the histopathological techniques for its assessment and improved radiographic detection using CBCT. Early diagnosis and approriate treatment are the keys to manage external cervical resorption (ECR) effectively. Periapical radiography has significant limitations in accurately assessing the extent and nature of ECR and formulating an appropriate treatment plan. Therefore, CBCT should be considered for the assessment and/or management of ECR.

Conclusion

In the 9-month follow-up examination, the tooth including ECR defect was completely asymptomatic and functional.

Early detection is necessary for successful management and outcome of ECR. CBCT should be considered for the assessment and/or management of ECR.

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