

Case Report and Review of Literature

External root resorption in maxilla

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ABSTRACT

We report clinical case of external root resorption in maxilla. The author conducted a search with electronic databases (MEDLINE, PubMed, Scopus, US National Library of Medicine) about frequency of external root resorption in maxilla, similar radiological images and surgical management. A 45 year old male patient presented with a painless swelling of approximately 0.5x0.5 cm in size, on the maxillary left region since 1 week. Clinical signs and symptoms suggested of periapical abscess. Radiographic evidence revealed external root resorption (loss of dentin, cementum and bone). After surgical extraction of maxillary first premolar the postoperative period was without complications.

Keywords: Dental radiography, diagnosis, root resorption, treatment

Introduction

The external resorption is a radiolucent areas localized on various outer root surfaces, followed by significant or less significant resorption of lamina dura and alveolar bone. Opaci-Gali V, Zivkov S^[1] of all teeth analyzed in their study, 594 (3.79%) showed some kind of resorption. The external resorptions prevails in the upper jaw (55.10%) and molars (50.30%) than in the lower jaw (44.90%) and single root teeth (49.70%), but in both cases were not determined significant statistical differences. The most common localization of resorptions was root apex (82.44%). According to age, the most frequent resorptions were established in aged between 21 and 30 years (28.40%), and the lowest incidence was determined in the youngest population (5.51%). The results also showed that resorptions were more common among the female population (59.04%) than among the male population (40.96%). The conclusion is that the external root resorptions are not a frequent clinical phenomenon. Basic precondition for successful endodontic therapy of the affected root is proper and early diagnostics of tissue pathology.^[1] Root resorption is a pathological

process which tends to occur following mechanical or chemical stimuli such as infection, pressure, trauma or orthodontic tooth movement. Although external root resorption diagnosed by radiography, in some cases may be identified by clinical symptoms - pain, swelling and mobility of the tooth.^[2] External root resorption can lead to degeneration of dental cementum, dentine and may extend towards the pulp reductive.^[3] Yilmaz HG, Kalender A, Cengiz E.^[4] suggest guided tissue regeneration (GTR) such as successful treatment procedure of periodontal reconstructive surgery. Adverse effects can be observed after GTR procedure. Invasive cervical resorption is a clinical term used to describe a relatively rarely, insidious, and often aggressive form of external root resorption.^[4] St George G^[5] describes two examples of external inflammatory resorption following surgical root surface debridement and the use of Emdogain.

Case Report

A 45 year old male patient reported to the Department of Oral Surgery, Faculty of Dental Medicine, Medical University – Plovdiv, Bulgaria with a chief complaint of slowly

progressing swelling on the left side of the face for a week. Face showed an obvious asymmetry caused due to a swelling on the left side of the maxilla. The color of overlying skin was normal. No change in local temperature. The overlying skin was smooth, intact, and appeared little stretched. The detailed head and neck examination did not reveal any significant findings. Intraoral examination revealed well-defined, localized swelling of the buccal vestibule in the region of 24. It was soft, fluctuant, and tender on palpation. Radiological examination revealed a upper first premolar with external root resorption and localized periodontitis (Fig. 1). Careful review of the radiography reveal tooth roots that are likely to cause difficulty if the tooth is extracted by the closed extraction (without mucoperiosteal flap). The maxillary first premolar was extracted by using an intraoral approach under local anaesthesia. Surgical protocol includes: creating a three-cornered flap with horizontal incision and vertical-releasing incision (provide adequate visualization for tooth extraction); reflection of full-thickness mucoperiosteal flap; sufficient amount of bone was removed using a bur (Fig. 2, 3). This approach allowed the use of straight elevator until the tooth roots is successfully extracted.



Fig.1 Radiography: external root resorption

After tooth extraction followed, trimming sharp bony edges with bone file; replaced the mucoperiosteal flap with interrupted sutures (Fig. 4). After surgical extraction of maxillary first premolar the postoperative period was without complications.

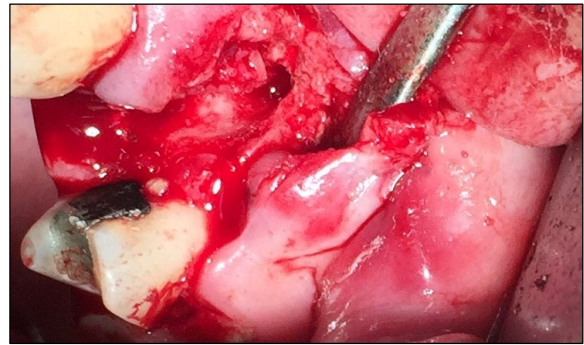


Fig.2 Intra-oral View: stage of operation during root removal

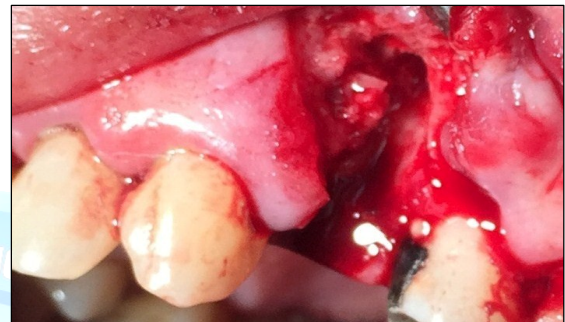


Fig.3 Intra-oral View: stage of operation after root removal



Fig.4 Mucoperiosteal flap is sutured with interrupted sutures

Discussion

External resorption is a process associated with (ir)reversible loss of cementum, dentin and bone. It takes place in both vital and pulpless teeth and the identification is mostly made during routine radiographic or clinical examination as the majority of cases are asymptomatic. External resorptions divided into two types: physiological and pathological. [6] Cone beam computed tomography imaging (CBCT) can be commonly useful in treating root resorption. Periapical radiographs tend to underrate the size of the resorptive lesion. Cone Beam

Computed Tomography (CBCT) scanning gives a more accurate estimate of the lesion size. The CBCT method provide the precise location of the lesion in three dimensions and show the relationship to the surrounding bone, which can be very helpful in decision making pertaining to surgical management of such lesions. [2] CT diagnostic ability revealed high sensitivity and excellent specificity. Small cavities located in the apical third were more difficult to detect than all other cavities. [7] In the world literature are described different techniques and materials for root lesions treatment caused by external root resorption. The treatment protocol for IERR includes elimination of bacteria and byproducts from the root canal system and dentinal tubules to stop the inflammatory processes. Utneja S [8] suggests nonsurgical endodontic retreatment of advanced inflammatory external root resorption using mineral trioxide aggregate obturation. Surgical management of IERR includes periodontal flap reflection, chemo-mechanical debridement and restoration of the defect with amalgam, composite resin, or glass ionomer cement, and repositioning the flap to its initially position. [4] We describe recent literature reviews which are similar to our case findings. Fernandes M, de Ataíde Ida, Wagle R. [9] presented five case reports of external resorption, extractions had to be advised in 3 cases. Most common reason for extraction is resorptive lesions with extension from cervical to apical third of the root lead to poor prognosis. Another author performed surgical extraction in case of latest stage of MICRR (Multiple idiopathic cervical root resorptions). Affected tooth was extracted through buccal intrasulcular full-thickness flap and surrounding gingival tissues were submitted for biopsy. [10] The present case describes an external resorptive defect in which tooth shows a sign of periodontal infection. This one tooth has a high risk of fracture. In this case, after clinical and radiological examination, the surgical extraction of tooth was performed.

Conclusion

This case report illustrates a rare case of external root resorption around maxillary first premolar. To conclude radiological examination is necessary to provide an adequate diagnosis.

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