Scholars Journal of Dental Sciences (SJDS) **ISSN 2394-496X (Online)**
Sch. J. Dent. Sci., 2015; 2(2A):122-125 **ISSN 2394-4951 (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjds.2015.v02i02.003

Case Report

The Pink Tooth: Unknown Etiology with Known Consequences

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Abstract: Internal root resorption is a relatively unusual resorption that begins in the root canal and destroys surrounding dental hard tissues. Multinuclear Odontoclastic cells are responsible for the resorption, which can grow and may perforate the root if left untreated. Internal root resorption is usually asymptomatic, but sinus tract usually forms in case of perforated type of internal resorption. The small lesions of internal root resorption if treated has excellent prognosis. Many materials and techniques have been used to fill resorptive defects. Among them, Mineral Trioxide Aggregates (MTA) has satisfactory result.
Keywords: Internal resorption, Endodontic treatment, Maxillary Canine, Mineral Trioxide Aggregates (MTA).

INTRODUCTION

Resorption of root is one of the reasons for loss of the tooth at an early age and it is a major concern in endodontic therapy. Internal root resorption is the progressive destruction of intraradicular dentin and dentinal tubules along the middle and apical thirds of the canal walls as a result of clastic activities[1]. Its etiology is still unknown, however, it can be associated with many factors such as partial removal of the pulp, caries, trauma, pulp capping with calcium hydroxide or pulpotomy, extreme heat and a cracked tooth. These factors stimulate the pulp tissue, thus initiating inflammatory processes and then some undifferentiated cells of the pulp convert themselves to osteoclasts or macrophages, which results in dentinal resorption[2].

Radiographically, it is described as a radiolucent area which is characterized by an oval-shaped enlargement of the root canal, which shows many times the appearance of an ampoule and which does not move with variations of radiographic angle[3]. Midroot internal resorption has sharp margins; most of the lesions are symmetrical, and uniform in density. With internal resorption, the canal cannot be traced and it will appear to balloon out into the lesion[4]. In more evolved cases, the fragility of the dental structure can cause areas of fracture or perforation[5].

Internal Resorption usually affects vital tooth. Therefore, nonsurgical root canal therapy (pulp removal) is the treatment of choice to arrest the destructive process[6]. Their regular confines of the resorptive cavity pose technical difficulties for thorough debridement and obturation of the pulp space.

Mineral trioxide aggregate (MTA) is suggested indications for root-end filling[7], pulp capping, apical filling of teeth with open apices, apexification therapy, and repair of root perforations[8], root resorption[9].

CASE REPORT

A 32 year old male patient was referred to Department of Conservative Dentistry and Endodontics. Patient presented with pain in Maxillary left anterior region. Patient history included pain in maxillary left canine(23), with no history of trauma previously or orthodontic treatment. He has a non contributory medical history. Clinical examination showed caries in relation to 23. The tooth was sensitive to percussion. There was no colour change. The electric pulp vitality test showed tooth to be non-vital. The adjacent teeth all responded within normal limits to percussion and vitality testing. A periapical radiographic examination showed a well-circumscribed, fairly oval radiolucency in middle third of the root with diffuse periapical rarefaction (Figure 1). According to clinical symptoms and radiographic examination diagnosis of internal resorption and pulp necrosis was made and endodontic treatment was planned.

The conventional access was prepared and the canal orifice was located using DG 16 Endodontic explorer. The coronal aspect of the canal was flared by using a Gates Glidden drill. Working length was determined using an apex locator (ROOT ZX, J

MORITA) and radiographs (Figure 2). The root canal system was debrided thoroughly and prepared by the step-back technique to a size 40. Copious irrigation with 2.6% sodium hypochlorite solution was used throughout the procedure. The absence of a perforation in the defect was confirmed by paper points (absence of bleeding) and the use of an apex locator. Calcium hydroxide paste was placed in the canal for a week, to alkalinize the environment. After 7 days, calcium hydroxide dressing was removed. The canal was finally irrigated with chlorhexidine and dried. Apical to defect root canal was obturated with guttapercha cones (Figure 4) and defect was filled with MTA (Figure 5). The next day remaining root canal space was obturated with guttapercha cones (Figure 6) and follow up was planned after 6 months and 1 year (figure 7,8).

Fig-1:- Pre Operative

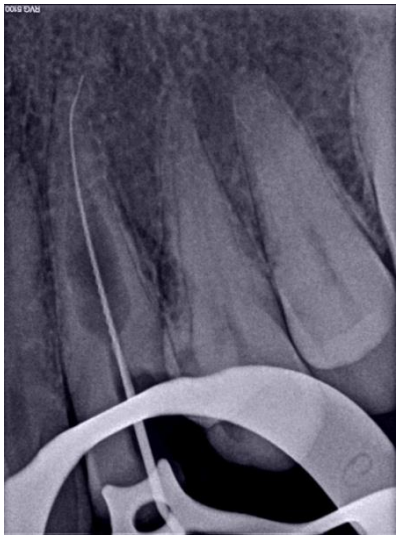

Fig-2:- Working Length Determination

Fig-3:- Master Cone

Fig-4:- After Obturation Apical To Defect

Fig-5:- MTA Placeed In The Defect

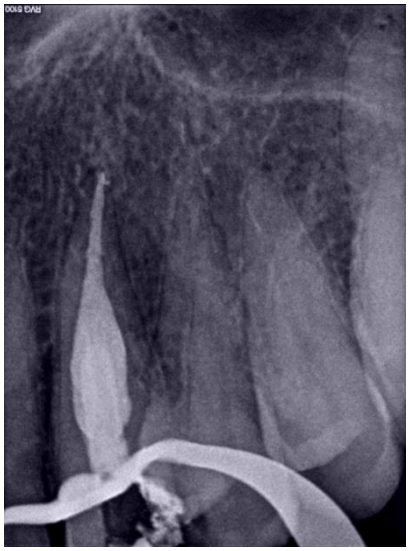

Fig-6:- Postoperative

Fig-7:- Follow Up After 6 Months

Fig-8:- Follow Up After 1 Year

DISCUSSION

The most common stimulation factor for root resorption is pulpal inflammation. Internal inflammatory root resorption is an insidious pathologic process, initiated within the pulp space and associated with loss of dentine. The reciprocal activity between the newly formed granular tissue and dentinoclasts initiates and progresses the resorption process inside the endodontic space.

Clinically, teeth are usually not symptomatic in the early period of the process, and resorption may be seen at this stage only in radiograph. However, as the process progress, the teeth may become symptomatic and periradicular changes may develop.

The lesion in this case was diagnosed as internal resorption. This diagnosis was based on radiographic examination (clearly defined margins, uniform density, and root canal walls appear to balloon out) and clinical (inability to probe the defect via the periodontal ligament) features and was confirmed on entering the mesial canal system.

Internal root resorption can be either transient or progressive according to a study by Wedenberg et al [10]. The early diagnosis and therapy is very important in order to stop the resorption process. The outcome of treatment of teeth with internal root resorption depends primarily on the size of the lesion. Large lesions cause a reduction in the resistance of the tooth to shear forces that may lead to tooth fracture. Therefore, it is imperative to initiate endodontic treatment as soon as possible to arrest the progression of the resorptive process and to prevent root or cervical crown fracture[11].

The resorbing cells in internal resorption are pulpal in origin. Therefore, a pulpectomy will remove the granulation tissue and blood supply of these cells. For this reason, a pulpectomy alone is a predictable treatment form in this type of resorption. Treatment generally consists of the preparation of the canal to the apical foramen with particular emphasis on irrigation and ultrasonication so that the resorbed area is cleansed as thoroughly as feasible.

Size of the defect complicated the mechanical debridement of the resorptive cavity. The use of calcium hydroxide proved to be an effective aid in addition to mechanical instrumentation. Root canal dressing with a material based on calcium hydroxide between sessions was aimed at dissolving remaining pulp debris, alkalinizing the environment[12].

According to Culbreath et al [13], the treatment for internal resorption can include several mateials such as guttapercha, zinc oxide and amalgam alloy. However these materials do not provide strength

to the tooth structure and may be responsible for considerable tooth discolouration.

Clinical use of MTA in humans has demonstrated their applicability in wet environments, preventing bacterial microleakage and alkalinizing the medium. After intracanal $Ca(OH)_2$ session, the defect in the canal was filled with white MTA to fill the resorbed area. For this case, MTA was selected because of its known abilities as a repair material, along with its sealing ability and mechanical strength[14].

The obturation of the canal can be achieved by a variety of techniques including hot vertically condensed gutta-percha, Obtura-delivered hot gutta-percha and more recent innovations such as the Microseal technique.

In this case, a full cuspal coverage in the form of a crown would have been appropriate. The need for permanent coronal restoration was once more pointed out to both the patient and referring dentist.

The case presented here was successful both clinically and radiographically. There was complete healing of the radiolucency in the alveolar bone and a continued absence of pathologic features. After 1 year, the tooth remained asymptomatic, and the patient was satisfied because he was able to keep the tooth.

CONCLUSION

Root resorption is a complex process. At present the internal inflammatory resorption is amenable to treatment and can be controlled. However, internal replacement resorption is difficult to predict and control. Prevention should be the best approach. This is the area which requires further investigation.

REFERENCES

1. Patel S, Pitt Ford TR; Is the resorption external or internal? Dent Update, 2007;34:218-29.
2. Yadav P, Rao Y, Jain A, Relhan N, Gupta S; Treatment of Internal Resorption with Mineral Trioxide Aggregates: A Case Report. Journal of clinical and diagnostic research: JCDR, 2013;7(10): 2400.
3. Jacobovitz M, de Lima RKP; Treatment of inflammatory internal root resorption with mineral trioxide aggregate: a case report. International Endodontic Journal, 2008; 41: 905-912.
4. Gartner AH, Mack T, Somerlott RG, Walsh LC; Differential diagnosis of internal and external root resorption. J Endod, 1976; 2:329-34.
5. de Reabsorción EDLP, en Radiografías I; Study of Prevalence of Internal Resorption in Periapical Radiography of Anteriors Permanents Tooth. Int. J. Morphol, 2009; 27(1):227-230.
6. Ne RF, Witherspoon DE, Gutmann JL; Tooth resorption. Quintessence Int, 1999; 30:9 –25.
7. Torabinejad M, Watson TF, Pitt Ford TR; Sealing ability of a mineral trioxide aggregate when used as a root end filling material. J Endod, 1993;19:591–595.
8. Torabinejad M, Chivian N; Clinical applications of mineral trioxide aggregate. J Endod, 1999;25:197–205.
9. Simon S, Rilliard F, Berdal A, Machtou P; The use of mineral trioxide aggregate in one visit apexification treatment: a prospective study. International Endodontic Journal, 2007; 40: 186-97.
10. Wedenberg C, Lindskog S; Experimental internal resorption in monkey teeth. Endod Dent Traumatol, 1985;1:221–7.
11. Keinan D, Heling I, Stabholtz A, Moshonov J; Rapidly progressive internal root resorption: a case report. Dental Traumatology, 2008; 24(5):546-549.
12. Siqueira JF Jr, Lopes HP; Medicac¸a˜ointracanal. In: Siqueira JF Jr, Lopes HP, eds. Endodontia: biologia e te´ cnica, 2nd edn. Rio de Janeiro: Guanabara Koogan, 2004; 581–618.
13. Culbreath TE, Davis GM, West NM, Jackson A; Treating internal resorption using a syringeablecomposite resin. J Am DentAssoc, 2000; 131: 493–5.
14. Torabinejad M, Hong CU, McDonald F, Pitt Ford TR; Physical and chemical properties of a newroot-end filling material. Journal of Endodontics, 1995; 21: 349–53.