

Management of Internal Resorption : A Case Report

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Abstract

Internal resorption is a relatively rare resorption of dentin which starts in the pulpal cavity either in the pulpal chamber or in the root canal and destroys surrounding dental hard tissues.

Radiographically, the lesion appears as a uniform, round-to-oval radiolucent enlargement of the pulp space. In this article we discuss a case of internal resorption its diagnosis and management.

Key Words : Internal Resorption

Introduction

Internal inflammatory root resorption is a rare resorption which begins in the root canal and destroys surrounding dental hard tissues. It is commonly an asymptomatic condition that is detected upon routine radiographic evaluation. Radiographically it is described as a radiolucent area characterized by an oval-shaped enlargement of the root canal, showing many times the appearance of an ampoule¹ and which does not move with variations of radiographic angle². The margins are smooth and clearly defined, with distortion of the original root canal outline.³ Odontoclastic multinuclear cells are responsible for the resorption, which can grow to perforate the root if untreated.⁴

Various etiological factors have also been suggested but the initiating factor in internal root resorption is thought to be trauma or chronic pulpal inflammation. Other predisposing factors to internal root resorption as suggested in the literature include pulpotomy, cracked tooth, tooth transplantation, restorative procedures, invagination, orthodontic treatment and even a Herpes zoster viral infection.

Initiation of resorptive process may occur due to damage to the organic sheath, predentin and odontoblast cells covering mineralized dentine inside the root canal, exposing the mineralized tissue to pulpal cells with resorbing potential.^{5,8} Vital pulp tissue and continuous microbiological irritation from the necrotic part of the root canal is responsible for active nature of resorption.

Internal root resorption is usually symptom free, but in cases of perforation, a sinus tract is formed. The prognosis for treatment of small lesions of internal root resorption is very good. The treatment should be initiated as soon as possible to prevent an eventual root perforation. The complete removal of the resorptive tissue should be done to prevent further loss of hard tissues. Sodium hypochlorite, ultrasonic instrumentation and calcium hydroxide are the cornerstones of treatment of internal inflammatory root resorption.

Case Report

A 28-year-old male patient reported to the Department of Conservative dentistry and Endodontics of I.T.S Dental College, Muradnagar with a complaint of pain in relation to lower left back teeth since 4 weeks. He gave history of root canal treatment one

year back. Medical history was non-contributory. On examination, 37 was tender on percussion. Radiographic examination revealed underfilled root canals and a radiolucent area was noticed on the middle one third of root canal space with respect to distal canal of 37. Based on radiographic findings, the lesion was diagnosed as internal resorption, and retreatment of tooth was initiated. Retreatment was carried out using Protaper universal retreatment files D₁, D₂, D₃. The tooth was isolated and working length was determined using an apex locator. Cleaning and shaping was done using crown-down technique with Ni-Ti rotary instrumentation (Protaper, Dentsply). Irrigation between each instrument was done using normal saline and 3% Sodium Hypochlorite solution.

Intracanal medicament (calcium hydroxide) was placed in pulp space because the granulation tissue could not be removed completely by mechanical instrumentation. In second visit, Metapex paste (calcium hydroxide and iodoform) was placed for 2 weeks. In a third office visit 2 weeks later, the canal was irrigated using 3% sodium hypochlorite which was ultrasonically activated. The root canals were obturated by down pack technique followed by backfill technique. Post endodontic restoration was done with silver amalgam followed by metal ceramic crown.

Discussion

The lesion in this case was diagnosed as internal resorption. Its diagnosis was based on radiographic examination which revealed oval radiolucent enlargement of the pulp space, the margins were smooth and clearly defined with distortion of the original root canal outline.

Teeth with internal resorption faces challenges during instrumentation and cleaning of the root canal space which are different from those of normal endodontic treatment. No fixed protocol is followed for the chemomechanical instrumentation of the root canal system in cases of internal resorption but great emphasis should be placed on the chemical dissolution of the vital and necrotic pulp tissue. Therefore, irrigation with sodium hypochlorite is an important part of the treatment of teeth with internal resorption. The shape of a resorbed root canal prevents instrument access to all areas of the canal. Creating a straight line access to the resorption cannot be done in many cases because it would weaken the tooth structure too much. This is one reason why the use of ultrasonically activated irrigation has been advocated for the treatment of internal resorptions.⁹ Ultrasonically activated irrigation facilitates the penetration of an irrigant to all areas of the root canal system and break loose necrotic tissue in the canal. Hand instruments are often bent at 14mm from the tip to help to gain contact with the walls of the resorption cavity and help to remove all soft tissue. The use of

hypochlorite and ultrasonically activated irrigation are mainly responsible for cleaning of the most challenging areas, but careful mechanical cleaning is also very important. Intracanal interappointment medicaments are used in endodontic treatments mainly to maximize the effect of disinfection procedures.¹⁰ In the treatment of internal resorption, the use of calcium hydroxide also has two other important goals: to necrotize residual pulp tissue and to make the necrotic tissue more soluble to sodium hypochlorite and to control bleeding. To overcome the problem of limited access of instruments to all areas of resorption cavity, medicaments are needed to completely debride the canal. Studies on the effectiveness of sodium hypochlorite and calcium hydroxide to remove the resorptive and other tissues from the root canal indicate that they have an additive or even synergistic effect.¹¹⁻¹⁶ Application of calcium hydroxide for 1-2 weeks allows removal of the residual tissue at the next appointment by irrigation and instrumentation. Ultrasonic activation of sodium hypochlorite is done to facilitate tissue removal and cleaning of calcium hydroxide from the canal before permanent root filling.

There is no generally accepted consensus on the materials and techniques that should be given priority when teeth with internal resorptions are permanently filled. However, case reports and clinical experience indicate that root filling methods using warm gutta-percha are generally preferred over other techniques.^{9,17-20} MTA should be considered in cases where the resorption has perforated, instead of gutta-percha because of its antimicrobial properties and better seal. MTA is also very well tolerated by the tissues.

In our case there was no perforation defect and therefore the canals were obturated using down pack technique followed by backfill technique.

The prognosis of the treatment of internal tooth resorption is good unless the tooth has been weakened too much by the resorption. With proper treatment and use of modern endodontic techniques and materials, the prognosis of even perforated cases is fairly good.

Conclusion

This case report emphasizes the importance of clinical and radiographic examination, because early the diagnosis of internal root resorptions, more effective will be the treatment and better the prognosis.

References

For a complete list of references are available on request please mail us editor@healtalkht.com

Legends

Fig.1 : Preoperative radiograph showing internal resorption in 37

Fig. 2 : Radiograph showing msater cone gutta-percha

Fig. 3 : Post operative radiograph

