

Transient Apical Internal Root Resorption: A Rare Case Report

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Abstract

Resorption is the osteoclastic activity caused by dental trauma like accidents, surgical procedures like Reimplantation, excessive forces or seepage from bleaching agents from sodium perborate that causes loss of dental hard tissues. Root Resorption within the pulp space is caused by inflammation which causes chronic irritation and loss of dentin. Root resorption of the affected tooth creates a great challenge for the Endodontist in the preparation and obturation of the canals which are affected by internal resorption. Transient apical internal root resorption is a small defect in the apical third of the root portion which is spontaneously repaired by itself. Transient internal apical root resorption is a self-limiting mechanism. As the resorption defect is usually too small to even be detected radiographically. This paper present the case report of Transient inner apical internal root resorption in the maxillary central incisor (tooth number 11) caused by trauma 15 years back which was successfully managed by endodontic treatment. Twelve-month

follow-up demonstrated clinically asymptomatic and adequately functional tooth, with radiographic changes showing healing.

Keywords: Trauma, Transient Internal Resorption, Self-limiting process.

Introduction

Internal resorption was first diagnosed by Bell in 1830¹. Root resorption is an inflammatory process that caused resorption of the internal part of the root due to necrosis of the odontoblasts. It occurred when normal healthy pulp tissue is converted into granulomatous tissue having a large number of giant cells, which resorb dentin². Internal resorption happened in the inner surfaces of dentinal walls that lined pulp space³. Internal resorption was discovered through periapical radiographs occasionally revealing a uniform, round to oval radiolucent enlargement of the pulpal portion of the root canal. In the cases of accidental trauma, the intrapulpal hemorrhages occur which form the blood clots that are replaced by granulomatous tissue and giant multinuclear cells that resorb dentin⁴. Resorption appears

sometimes as a pink stain as the enlarged pulp becomes visible through the thin portion of the coronal Enamel⁵. It is also called pink tooth of Mummery or odontoclastoma⁶. The pink colour of the tooth is due to vascular granulation tissue which is visible through the coronal dentin, due to thinned coronal enamel. Transient apical internal root resorption is another form of trauma-induced non-infective root resorption which is usually too small to even be detected radiographically and was identified by Andreasen in 1986⁷. This resorptive process can follow luxation injuries which leads to transient apical breakdown – recognized by a confined periapical radiolucency that resolves within a few months. Due to intrapulpal haemorrhage⁸ there are colour changes in the coronal portion of the tooth. In the case of internal resorption, the canal wall becomes discontinuous and disturbed the integrity of the canal space. There is the formation of ballon-like radiolucency in the canal space is normally visible on the radiograph⁵. The progress of internal root resorption depends on vital tissues. In an attempt to prevent further loss of dental hard tissue treatment should be such that there is a complete removal of the resorptive tissue from the root canal system. However, the selection of suitable material for restoration in these cases becomes a challenge when there is excessive loss of tooth structure. Various materials like Glass Ionomer cement, Light-cured composite resin, Amalgam, Mineral Trioxide Aggregate (MTA), and bio dentine have been recommended to restore the resorptive defect in the apical area of the root portion. Nowadays, calcium-silicate-based material such as bio dentine introduced by the Septodont company have mechanical properties that are superior, and biocompatibility is excellent. bio dentine is bioactive material as well. Sealing ability to bio dentine is similar to glass-ionomers, which does not

require any preconditioning of the surface. Indications of Bio dentine are similar to all other calcium silicate-based materials but its properties are better than MTA like its consistency is better than MTA. Biodentine is fast setting bioactive material so obturation with Bio dentine occurs in a single step. its setting time of about 12 minutes⁹⁻¹¹.

This article described a case in which patient aged 55 years came to the dental hospital with the complaint of pus discharge in the right front buccal vestibular area in relation to tooth 11. After taking the intraoral periapical radiograph Internal root resorption in the apical third portion was detected in relation to tooth 11. This case report presents a successful endodontic treatment of the transient apical internal root resorption of the right maxillary central incisor (11) and fills the resorption defect with Bio dentine and 12-month follow-up.

Case report

A 55-year-old, male patient came to the Department of Conservative Dentistry and Endodontics with the chief complaint of Swelling and pus discharge from the right labial vestibular reason from the last 1 month (Fig 1). He gave his history of trauma 15 years ago.

Clinical examination revealed sinus tract in the labial vestibule in the right front tooth reason with respect to 11 and discoloration of the crown. Pulp vitality tests were performed with heat test cold test and with the help of EPT which showed no response with respect to tooth 11 and delayed reading with EPT. It showed pulp is necrotic with respect to the upper right front tooth reason (11). Radiographic examination of the same teeth revealed an oval-shaped radiolucency in the apical third of the root of tooth 11 (Fig 2). Diagnosis of Transient internal apical root resorption in relation to tooth 11 was made. It was decided to do non-surgical endodontic treatment of the right maxillary central incisor (11). An access opening was made in the right maxillary central

incisor and a canal was then negotiated with k file. The working length is determined with the help of 20 number k file (Fig 3) followed by Biomechanical preparation. BMP was done with the help of K-files and the canal was properly irrigated with an alternating solution of saline and 5.25% sodium hypochlorite. The Master cone was selected. The canal was dried with absorbent paper points. bio dentine was mixed and fill the resorption defect in the apical third of the canal and the remaining canal was obturated with gutta-percha points using the lateral condensation technique. (Fig 4). Six months follow-up radiograph revealed successful healing of the lesion (Fig 5)

Discussion

A Resorption is the loss of dentin, cementum, or bone¹² associated with an abnormal physiological process. Internal root resorption is a pathologic intra-radicular process that involves permanent teeth during which transforming pulpal cells resorb dentinal walls¹³. The exact cause of Internal transient root resorption is unknown; however, chronic inflammation of coronal pulp tissues and loss of predentin following traumatic injuries have been stated as the major factor for starting Internal resorption. Clinically Internal root resorption is asymptomatic and is diagnosed during routine clinical and radiographical evaluation. Transient Internal root resorption was not detectable on radiographs at their early stages, when they are small, also because of limitations of this 2-dimensional periapical radiograph of three-dimensional object. Radiographically, transient internal root resorption is represented as a small balloon-shaped radiolucent lesion inside the root canal space that breaks the root canal's natural outline. Following radiographic images at different angulations by using the SLOBE rule Transient internal apical root resorption in the canal space would not displace with different

angulations¹⁴. Transient apical root resorption occurs in the two phases mainly injury and stimulation. Injury is related to the nonmineralized tissues which covered the internal surface of the root canal, the predentin, and the odontoblasts layer. Infection is the main stimulation factor in internal root resorption. Teeth are not symptomatic in the early stage of resorption. The resorbing cells in the pulpal space, come from the apical vital part of the pulp¹⁵.

Transient Internal root resorptions may be present in the crown or in different thirds of the root³. Transient apical internal root resorption is a self-repairing process. As the resorption defect is usually too small it is very difficult to detect radiographically. The treatment of Transient internal root resorption is to remove all vital tissues from the root canal space to prevent further resorption of dentine. The success of treatment in cases of internal resorption depends upon the size of the resorptive defect¹⁶. Prognosis of the tooth with transient apical internal root resorption after endodontically treatment, the need for radiographic control every six months for at least two years should be considered. Such fact is due to the possibility of the area involved by the resorption to present a lateral canal, which would allow the continuity of the resorption process and compromise the treatment³. It will be important to follow these cases to check for the continued absence of symptoms for a long time.

Conclusion

In this case report, we treated the transient apical internal root resorption with the help of bioactive restorative material bio dentine, and 12-month follow-up revealed the healing of periapical tissues. so, we concluded that transient internal root resorption is the self-limiting process and is just an initiation of the internal resorption. It repairs by itself sometimes and sometimes with proper

treatment .so early diagnosis and proper treatment of transient internal resorption leads to a tooth with a better prognosis.

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Legend Figure



Fig. : 1

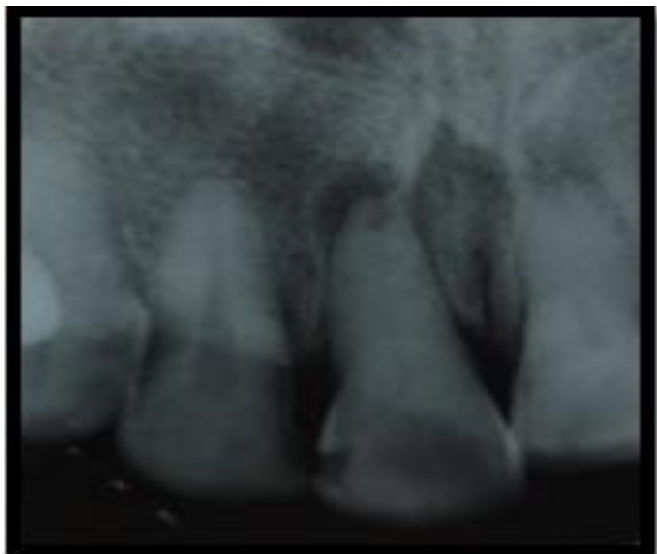


Fig. : 2



Fig. 5



Fig. : 3

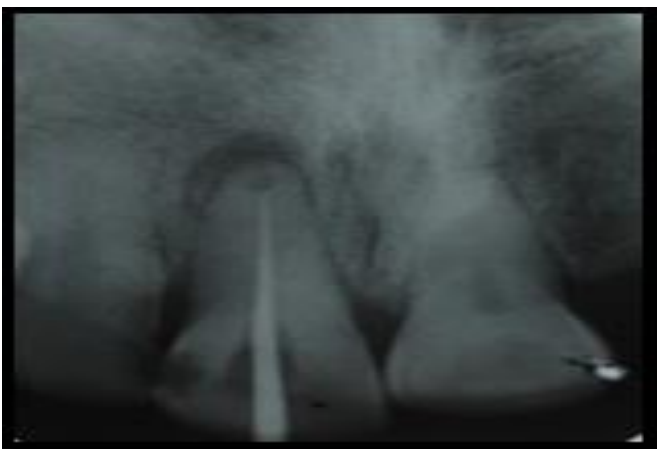


Fig.: 4