ISSN: 0975-833X

Available online at http://www.journalcra.com

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

International Journal of Current Research
Vol. 13, Issue, 05, pp.17231-17234, May, 2021

DOI: https://doi.org/10.24941/ijcr.41210.05.2021

RESEARCH ARTICLE OPEN ACCESS

MANAGEMENT OF INTERNAL RESORPTION: A CASE REPORT

[1,*]Dr. Swathi, P., [2]Dr. Anupama S Gopinathan, [3]Dr. Shiji Dinakaran, [4]Dr. Mali G Nair, [5]Dr. Renjini, S. and [6]Dr. Aishwarya, P.

[1]Postgraduate Student, Department of Conservative dentistry and Endodontics, Government Dental College, Thiruvanathapuram
[2]Associate Professor (Cap), Department of Conservative dentistry and Endodontics, Government Dental College, Thiruvanathapuram)
[3]Professor, Department of Conservative dentistry and Endodontics, Government Dental College, Thiruvanathapuram
[4]Professor and Head of the Department, Department of Conservative dentistry and Endodontics, Government Dental College, Thiruvanathapuram)
[5]Postgraduate Student, Department of Conservative dentistry and Endodontics, Government Dental College Thiruvanathapuram
[6]Postgraduate Student, Department of Conservative dentistry and Endodontics, Government Dental College Thiruvanathapuram

ARTICLE INFO

Article History:
Received 14th February, 2021
Received in revised form
05th March, 2021
Accepted 19th April, 2021
Published online 15th May, 2021

Key Words:
Biodentin,
Internalresorption,
Calcium Hydroxide

ABSTRACT

Root resorption of the tooth may be a pathologic or physiologic process resulting in loss of root dentin and cementum. Broadly, it can be of two types – external and internal root resorption. The location of these resorptions can vary. Internal resorption is relatively a rare resorption in which resorption begins in the root canal and destroys surrounding dentalhard tissues. It is caused by transformation of normal pulp tissue into granulomatous tissue by giant cells, which resorbdentin. Thepresent article describe the management of internal resorption involving mandibular premolar with internal root resorption with 1 year follow-up

Citation: Dr. Swathi, P., Dr. Anupama S Gopinathan, Dr. Shiji Dinakaran, Dr. Mali G Nair, Dr. Renjini, S. and Dr. Aishwarya, P. "Management Of Internal Resorption: A Case Report*", 2021. International Journal of Current Research, 13, (05), 17231-17234.*

INTRODUCTION

Resorption is a condition associated with either a physiologic or a pathologic process resulting in a loss of dentin, cementum, and/orbone.Root resorption may occur after various injuries, including mechanical, chemical, or thermal injury (Umashetty, 2015). Root resorption is broadly classified into external and internal resorption by the location of the resorption in relation to the root surface.Andreasen has classified tooth resorption following dental trauma (Parmar *et al.*, 2014)

Corresponding author:** ***Dr. Swathi, P.,
Postgraduate Student, Department of Conservative dentistry and Endodontics, Government Dental College, Thiruvanathapuram.

Tooth Resorption – Classification

• Internal

Inflammatory

Replacement

• External

Surface

Inflammatory
Replacement

Internal resorption is established after necrosis of odontoblasts and is associated with chronic partial pulp inflammation and partial pulp necrosis (Umashetty, 2015). Bell first reported a case on internal resorption in 1830 (Mittal, 2014) Internal inflammatory resorption is relatively more destructive and results in loss of tooth structure devoid of the deposition of any hard tissue and is most frequently found in the cervical region (Parmar, 2014) The resorptive defect located in the pulp chamber gives an appearance of a “pink spot” lesion (Singh) Vital pulp tissue is required for internal resorption to take place (Maria). Duetoitsinsidious pathology, internalresorptioncan progress to a greatextent before its detection.In order to control the internal root resorption,it is necessary to treat the root canal aiming to remove all the pulp tissue and achieve a better sealing Therefore treatment of choice is nonsurgical root canal treatment to arrest the cellular activityaccounting for theresorptiveprocess (Thomas, 2014). Combined treatment plan using bioactive materials like Biodentine induce remineralization and healing (Umashetty, 2015). This paper insights case report involving non-perforating internal resorption case, which were successfully managed and showed successful healing after 6 months to 1 year follow-up period.

CASE REPORT

A 31 year oldfemale patient reported to the Department of Conservative Dentistry & Endodontics with a chief complaint of pain in relation to lower right back tooth region. Clinical examination revealed tooth number 45 was tender on percussion but devoid of caries and any other periodontal pathology. A routine intraoral periapical (IOPA) radiograph was hence advised. Radiographic interpretation revealed the presence of an oval shaped radiolucency at the junction of coronal & middle one third of the root of 45 suggestive of internal resorption (Fig 1).

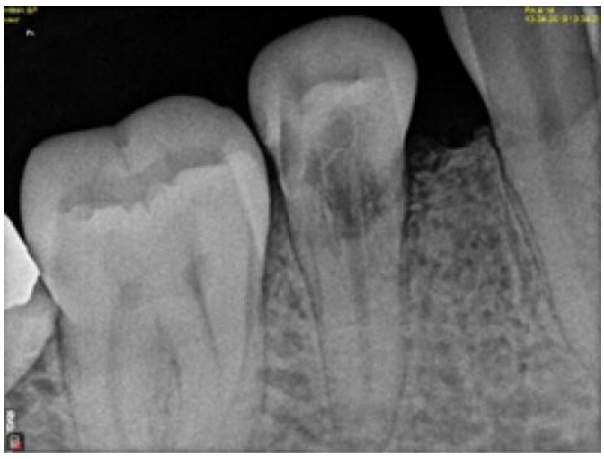

Figure 1- Preoperative intraoral periapical radiograph

Treatment plan included endodontic treatment of tooth no.45 followed by post endodontic restoration. Local anesthesia (2% lignocaine with 1:80000 adrenaline) was administered & tooth was isolated under rubber dam. Access cavity was prepared. Canal was thoroughly irrigated with 5.25% sodium hypochlorite. The working length of the tooth was measured by apex locator (J Morita Mfg. corp., Kyoto, Japan) and confirmed radiographicaly (Fig2). The canal was enlarged with stainless steel hand files using EDTA (Glyde, Dentsply) as a lubricant. The apical portion of the canal was enlarged to size no. 50 K- file & a stepback preparation was done to minimise further coronal dentine destruction.

Figure 2 . Working length determination

Figure 3. Mastercone radiograph

As the internal resorption defect periphery was very thin radiographically, absence of any perforation during root canal instrumentation was confirmed with electronic apex locator and dried sterile absorbent paper points. Canal was dried with sterile paper points & an intracanal paste made by mixing calcium hydroxide powder & distilled water was placed. The access cavity was sealed with CavitTM G (3M ESPE). At the end of 4 weeks the temporary filling was removed, calcium hydroxide was flushed out & the canal was dried thoroughly. Mastercone was selected and confirmed using radiograph (Fig 3). Obturation was doneupto the apical extent of resorptive lesion by lateral compaction using AH plus sealer (Dentsply) (Fig 4).

Figure 4. Obturation plugged upto the resorptive defect

Resorptive defect was then filled with biodentine. Biodentine capsule (Septodont, SaintMaur-des-Foss´es, France) was mixed to a good creamy consistency according to manufacturer's instructions and was inserted into the resorption cavity using a nonsurgical MTA carrier (Micro Apical Placement System, ProduitsDentaires, Vevey, Switzerland) and was condensed laterally against the walls of resorption cavity with pluggers toreinforce the weakened tooth structure of the resorptive defect. After ensuring complete set of the material (setting time 12mins) coronal restoration was done using composite (Fig 5). A twelve month follow-up radiograph showed uneventful healing of the lesion (Fig 6) and patient was clinically asymptomatic.

Figure 5. Placement of biodentine in the resorptive defect and composite restoration

Figure 6. One year follow up radiograph

DISCUSSION

Since internal resorptive lesions have less dentin thickness and concavity defects, they pose problems while instrumentation and filling compared to normal root dentin. Such lesions may be the reservoir of granulation tissues and clastic cells and the complete elimination of these becomes much necessary (Vyavahare, 2017). There is always a dilemma of whether to treat a tooth with a questionable prognosis endodontically or extract it and subsequently place an implant. The management of internal resorption is intendedto remove all the vital and non vital pulpal remnants and to disinfect and obturate the root canal.

Conventional root canal treatment results in a high degree of success in the management of non perforating internal resorption (Report, 2018). Hence in the present case we decided to go for non surgical management which involves thorough chemo mechanical preparation, intracanal medicament placement within the canal to achieve proper disinfection and osteoclastic activity cessation, filling the internal resorptive defect with biodentine followed by composite post endodontic restoration. NaOCl an effective antimicrobial irrigating solution, aids in dissolving necrotic tissue. However, some amount of debris may still persist within the resorption niche thus necessitating the placement of an intracanal medicament like Ca(OH)2that has a pronounced antimicrobial effect due to its alkaline pH. Placement of Ca(OH)2has been recommended for 1 to 2 weeks that provides sufficient time to necrotize the residual pulp tissue (Fernandes, 2013) Calcium hydroxide as an intracanal medicament is a potential inhibitor of tooth resorption and induce hard tissue formation (Kim, 2014).

Considering the thin and weakened tooth structure in the resorptive defect, a bioactive material was needed to reinforce the tooth and thereby enhance the prognosis of the tooth. Biodentine was used because it has some features which are superior to MTA; for example, its consistency is better suited to the clinical use than MTA's and Biodentine does not require two-step obturation as in the case of MTA because ofits faster setting time ofabout 12 minutes Biodentine powder is mainly composed of tricalcium silicate, calcium carbonate, and zirconium oxide as the radiopacifier, whilst Biodentine liquid contains calcium chloride as the setting accelerator and water reducing agent. It has the capacity to develop watertight interfaces both with dental structures and with adhesive systems. Biodentine shows deposition of apatitic structures which might increase themarginal sealing ofthematerial (Umashetty, 2015).

CONCLUSION

Success in management of a case of internal resorption depends on early detection, appropriate treatment planning, removal of inflammatory pulp tissue, reinforcement of weaker tooth structure, and a three-dimensional obturation.It is imperative to initiate endodontic treatment as soon as possible to arrest the progression of the resorptive process and to prevent further weakening of tooth structure

REFERNCES

Umashetty G, Hoshing U, Patil S, Ajgaonkar N. Case Report Management of Inflammatory Internal Root Resorption with Biodentine and Thermoplasticised Gutta-Percha. 2015;2015(24).

Parmar A, Vadher R, Parmar G, Dhanak N. Management of Internal resorption : Case report. 2014;(September):386–94.

Mittal S, Kumar T, Mittal S, Sharma J. " Internal root resorption : An endodontic challenge ": A case series. 2014;17(6):590–3.

Singh S. Resorptions revisited - internal resorption : Two case reports.

Maria R. Internal resorption : A review & case report.

Thomas P, Pillai RK, Ramakrishnan BP, Palani J. An Insight into Internal Resorption. 2014;2014.

Vyavahare NK, Baranwal AK, Lakiang RD, Hindlekar A. Rare Simultaneous Occurrence of Internal Root Resorption , External Apical Resorption , and Open Apex : Management with 2 Years Follow - up. 2017;39–43.

Report C. Rootless Existence: A Case Report of Internal Resorption. 2018;97–100.

Fernandes M, Ataide I De, Wagle R. 2013. Tooth resorption part I - pathogenesis and case series of internal resorption., 16(1):6–10.

Kim D. 2014. Antimicrobial effect of calcium hydroxide as an intracanal medicament in root canal treatment : a literature review - Part I. In vitro studies. 7658:12–6.

****