

Case report:

Surgical endodontics after conventional endodontic treatment failure: case report

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Abstract

Endodontic surgery is a safe and only alternative when teeth are not responding to conventional treatment and endodontic re-treatment. It must be applied in specific situations only. Endodontic treatment failures can occur as a result of primary or secondary infection. Endodontic surgery comprehends a set of procedures recommended in periapical diseases treatment, when traditional endodontic therapy does not obtain favorable outcomes. Platelet rich fibrin plays important role in enhancing bone repair. It has wide range of clinical implication with successful outcomes.

Key Words: Apicectomy, Periapical Cyst, PRF

Introduction

Maxillary incisors are mostly susceptible to traumatic injuries. Following to trauma, teeth usually goes into concussion stage for some period of time. Pulpal necrosis is a frequent sequel of trauma which may result in to periapical lesion.¹ Treatment option for such lesions mainly depend upon extent of lesion. This includes non-surgical root canal treatment and/or apical surgery to extraction in worst cases. If tooth does not respond to conventional endodontic treatment or retreatment and there are persistent signs and symptoms and/or no radiographic evidence of healing of periapical lesion, a surgical intervention is required.² This case report presents successful retreatment of large periapical cyst with surgical approach.

Case report

A 25 year old male patient reported to the Department of Conservative Dentistry and Endodontics, Government dental college & hospital,

Ahmedabad with the chief complain of pain in 12 since 15 days. Patient gave history of trauma in upper front teeth region 13 years back and had undergone for endodontic treatment of 12 before 3 years.

On clinical examination, there was no swelling or sinus tract in relation to 12. Tooth was tender to percussion but firm in the socket. Radiographic examination showed large periapical lesion in relation to 11 and 12 (fig 1).

Based on history, clinical and radiographic examination provisional diagnosis was radicular cyst. Access opening was done in 11 .post endodontic restoration and guttapercha was removed from 12. Suppuration was allowed from canals. Working length were determined and biomechanical preparation was done. Irrigation carried out using normal saline. Canals were dried with absorbent paper points and Calcium hydroxide (PREVEST DenPro®) along with chlorhexidine was given as intracanal medicament followed by temporary

restoration with kalzinol. Intra canal dressing was changed every 15 days. After 4 weeks patient was asymptomatic but suppuration was still present. Intra canal dressing was maintained for 6 month with change in every 15 days. Even after 6 months, Canals were weeping. Hence, surgical approach was planned.

Surgical approach comprehended a set of procedures that included surgical enucleation of cyst, apicectomy and retrograde filling of involved teeth with MTA. The procedure was as follows: After administration of local anesthesia, crevicular incision was given which extends from 21 to 13 regions. A full thickness mucoperiosteal flap was reflected and irrigated with normal saline. Bony window was present on the buccal aspect (fig 2). Palatal cortical plate was resorbed in relation to 11 and 12. Complete curettage and enucleation of cyst carried out (fig 3). Root end were resected to 3 mm. Cavity was prepared and retrograde filling done with MTA followed by obturation with lateral condensation technique (fig 4). Bony cavity was filled with platelet rich fibrin to ensure faster healing (fig 5). Closure of flap was done with 3-0 silk following hemostasis. Post-operative instruction given and Antibiotics and Analgesics prescribed to the patient. The cyst was sent to histopathological examination. The histopathology report confirmed the diagnosis of an infected radicular cyst. Patient was recalled at interval of 7 days, 3 months and 6 months for follow-up (fig 6 & 7).

Discussion

Surgical method of treatment should be considered when there are persistent signs and symptoms and/or no radiographic evidence of healing of periapical lesion.³ From the endodontic perspective, retreatment should always be considered before surgical treatment, since there is evidence of greater healing

rate in cases where re-treatment was performed before apical surgery.⁴ In this case, first attempt was non-surgical approach.

Surgical approach is indicated in several clinical situations like periapical lesions persistent to conventional treatment, perforations, fractured instruments, apical delta removal and external absorption.^{5,6,7} Apicectomy has been proposed to be requirement and fundamental part of periapical surgical procedures. Apicectomy includes surgical removal of tooth apical portion.

Following apicectomy, root end cavity was prepared and filled with MTA. MTA is material of choice, due to its superior sealing ability⁸, biocompatibility^{9,10}, fibroelastic stimulation¹¹, antimicrobial activity¹², and promote periodontal healing¹³.

In this case, PRF used to ensure faster healing. Platelet-rich fibrin (PRF) described by Choukroun et al.¹⁴ is a second-generation platelet concentrate which contains platelets and growth factors in the form of fibrin membranes prepared from the patient's own blood free of any anticoagulant or other artificial biochemical modifications. PRF enhances wound healing and regeneration and several studies show rapid and accelerated wound healing with the use of PRF than without it.^{15,16} PRF is superior to other platelet concentrates like PRP due to its ease and inexpensive method of preparation and also it does not need any addition of exogenous compounds like bovine thrombin and calcium chloride. It is advantageous than autogenous graft also because an autograft requires a second surgical site and procedure. Thus PRF has emerged as one of the promising regenerative materials in the field of endodontics.

In the present clinical case after 6 months follow up, patient reported no pain, reduction in size of lesion and signs of bone healing were observed.

Conclusion

This case report presents a teeth with unsatisfying conventional endodontic treatment history. Hence, it was chosen to retreat 12 and perform apicectomy in

relation to 11 and 12. To fill the cavity PRF was chosen because it accelerate healing & also economical. On 6 month follow up radiograph shows periapical bone repair. It is suggested that the treatment of the large periapical lesion should be defined according to the clinical and radiographic evaluations according to each case.



Fig 1



fig 2



fig 3



Fig 4



fig 5

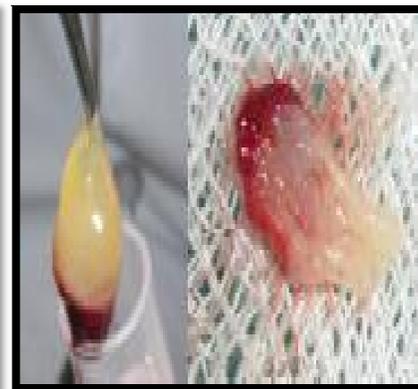




Fig 6



fig 7

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