

Case Report

Salvage through endodontic surgical management: A case report

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ABSTRACT:

The main goal of apical surgery is to prevent bacterial leakage from the root-canal system into the periradicular tissues by placing a tight root-end filling following root-end resection.

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INTRODUCTION

The major goals of endodontic treatment is to clean and shape the root canal system and seal it in 3 dimensional to prevent reinfection of the tooth . Although initial endodontic therapy has been shown to be a predictable procedure with a high degree of success. Failures can occur after treatment. Recent publications reported failure rates of 14%–16% for initial root canal treatment. Lack of healing has been attributed to persistent intraradicular infection residing in previously uninstrumented canals, dentinal tubules, or in the complex irregularities of the root canal system.

Apical surgery has greatly benefited from continuing development and introduction of new diagnostic tools, surgical instruments and materials, making this method of tooth maintenance more predictable. Success rates approaching 90% or above have been documented in several clinical studies.

CASE REPORT

A 20 yr male patient came to the Department of conservative dentistry and endodontics with a chief complaint of pain and discharge in his upper anterior tooth. After examining the patient gave history of previous root canal treatment with crown in upper anterior teeth 8years back. Under radiographic investigations it was found that the root canal treatment was incomplete wrt 11,21. After examination the periapical radiolucency was involving 21,22. Open apex was seen in 11.Root stump was examined wrt 12.Implant was planned wrt

12.Previous obturation was removed wrt 11,21. Firstly, all the non surgical methods were tried but the patient was still symptomatic. So it was decided to go for the surgical method. Patient's consent was taken prior to the surgery. Preoperative radiograph and CBCT were taken. Indicated teeth were endodontically treated. Also blood heamogram tests were conducted prior to surgery. On the day of surgery patient was administered local anesthesia. Full thickness mucoperiosteal flap was reflected by giving two vertical incisions and a horizontal incision. Osteotomy was performed under copious water spray using straight micromotor handpiece with bone cutting bur. Root was resected up to 3mm wrt 21,22. Removal of granulation tissue was done using curettes. Retrograde cavity preparation was done using micromotor contra angle handpiece and round bur. Retrograde Root filling was done using bio-C repair at root end wrt 21,22.open apex management was done wrt 11.Collagen plug was placed in orthograde manner wrt 11. Thermoplasticized obturation was done in both 11 and 21.

Antibiotics and analgesics were advised along with mouth wash during immediate post-operative period. After 7 days, the sutures were removed. Regular follow-up was done from the time of operating procedure as 1 month, 3 months and every 6 months and 1 year. After that prosthesis wer given wrt 11,21 and implant supported prosthesis was given wrt 12.

There was no significant sign and symptoms clinically. Radiograph showed formation of new bone

at periapical area and the lesion size was reduced to greater extent.

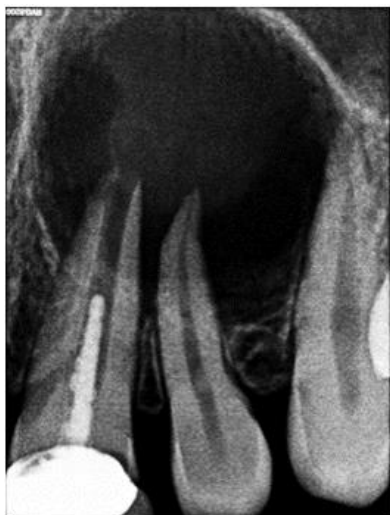


Fig 1-Pre – operative radiograph wrt 21,22



Fig 2- Pre operative CBCT evaluation



Fig 3- Pre operative radiograph wrt 11,12



Fig 4- post operative radiograph wrt 11,12



Fig 5- post operative radiograph after 1 year



Fig 6- clinical picture of patient after crown fabrication wrt 11,21 and implant supported prosthesis wrt 12

DISCUSSION

The objective of apical surgery is to surgically maintain a tooth that primarily has an endodontic lesion that cannot be resolved by conventional endodontic (re-)treatment. It is therefore of clinical relevance to perform a thorough clinical and radiographic examination of the tooth before apical surgery (including adjacent and opposing teeth), in order to decide whether surgical or non-surgical endodontics should be considered. According to the updated guidelines by the European Society of Endodontology, indications for apical surgery comprise (1) radiological findings of apical periodontitis and/or symptoms associated with an obstructed canal (the obstruction proved not to be removable, displacement did not seem feasible or the risk of damage was too great), (2) extruded material with clinical or radiological findings of apical periodontitis and/or symptoms continuing over a prolonged period, (3) persisting or emerging disease following root-canal treatment when root canal retreatment is inappropriate, and (4) perforation of the root or the floor of the pulp chamber and where it is impossible to treat from within the pulp cavity.

Due to the limitations of MTA, bioceramic endodontic materials have emerged as alternative cement that can be used for repair. Bio-C Repair is a cement with the considerable advantage of being supplied in a ready-to-use form (putty). The chemical composition, ultrastructural morphology, biocompatibility, and human dental pulp effects of Bio-C Repair were compared to Biodentine and ProRoot MTA. Bio-C Repair was found to mainly be composed of carbon (34.81%) and oxygen (34.51%), with a lower concentration of calcium compared to

the other biomaterials, which mainly contain oxygen and calcium. This characteristic composition of Bio-C Repair may be associated with a higher capacity for tissue repair.

CONCLUSION

The bioceramic Bio-C Repair was able to facilitate and accelerate the healing in its ready-to-use form simplifying the procedure and saving time. Future long-term observational studies are recommended to increase the available evidence demonstrating the successful use of this repair cement. These cases demonstrated that Bio-C Repair could be an effective therapeutic alternative to MTA, as observed at one-year follow-ups.

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