Clinical Evaluation of Two Different Filling Materials in Case of Endodontic Surgery (Mineral Trioxide Aggregate and Biodentine - Case Reports

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Abstract: A good apical seal is very crucial for achieving success following surgical endodontics. In this case a standardized surgical technique was employed: the root end was resected perpendicularly and a root-end cavity was prepared and filled. A follow up cone beam computed tomography was taken with follow up at 6 and 9 months.

I. Introduction
A good apical seal is very crucial for achieving success following surgical endodontics. Endodontic surgery often includes the various steps like debridement and curettage of periradicular lesion from the pathologic tissues, exposure of root apex, root end resection, root end preparation and insertion of root end filling material.(1) Surgical endodontics is often indicated when nonsurgical endodontic treatment is unsuccessful or not predictable.(2)

The field of Endodontic has seen vast improvements in technology and techniques over the past several years. Perhaps the one area of Endodontic that has improved the most is the way in which surgery is performed.(3)

II. Aim
Aim is to evaluate outcome of two different retrograde filling material (Mineral Trioxide Aggregate and Biodentine) in cases of endodontic surgery.

Surgical procedure:
After patient was anesthetized with 2% Lignocaine with1:80,000 adrenaline,a sulcular and mucogingival incision is made with B.P.Blade Flap elevation will be done using Elevator Osteotomy will be performed by using no-4 and 6 round carbide bur with Impact Micro-motor handpiece and curette (DISK SHAPED CURETTE-1.5mm) were be used for periradicular curettage.At first a 3mm root tip with 0-to10-degree bevel will be sectioned by Taper fissure170L under copious water spray.Root-end preparation will be done extending 3mm into canal space using round and carbide bur. Resected root surface will be stained with methylene blue and inspectedWith microscope under high magnification X14X26to examine the cleanliness of root-end preparation and other anatomic structures. Prepared root end cavity will be dried. With irrigator/drier and filled with material such as MTA and Biodentine.

Adaptation of filling material will be confirmed by using x-ray. The wound site will be closed & sutured and post-operative radiographs were taken. The patients were instructed regarding the postoperative care, the sutures were removed after 4-7 days postoperatively, and healing progress will be checked and recorded properly. After whole procedure patients were recalled in every 3 months6 month and for 9 months to assess the clinical and radiographic signs of healing by the use Cone Beam Computed Tomography.

III. Case Report One
A 16 year old patient came to the department of conservative dentistry and endodontics with the complain of pain maxillary left lateral incisor and accident occurred when the patient was 14 years old. Radiographic examination, that Periapical lesion are present in relation of left upper lateral incisor and treatment plane is periapical surgery done with MTA retrograde filling material.

Figure 1- Preoperative radiograph

Figure 2- Preoperative CBCT

Figure 3- Preoperative image

Figure 4- Flap reflected
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Figure 5- Window preparation and biodentin placement

Figure 6- Bonegraft placement

Figure 7- Suturing

Figure 8- CBCT after 6 months

Figure 9- CBCT after 9 months
Case Report Two

A 37 year old patient came to the department of conservative dentistry and endodontics with the complaint of pain in mandibular both central and lateral incisor. Radiographic examination, that Periapical lesion are present in relation of mandibular anterior tooth region both central and lateral incisor and treatment plane is periapical surgery done with Biodentin retrograde filling material.

Figure 10- Preoperative CBCT

Figure 11- Preoperative image

Figure 12- Flap raised

Figure 13- MTA placement

Figure 14- Bone graft placement
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IV. Discussion

Endodontic surgery is a safe and adequate alternative when teeth are not responding to conventional treatment and endodontic re-treatment. It must only be applied in specific situations. The goal of periradicular surgery is to remove all necrotic tissues from the surgical site, to completely seal the entire root canal system, and to facilitate the regeneration of hard and soft tissues including the formation of a new attachment apparatus. The purpose of this case report, placing retrograde filling materials (Mineral Trioxide Aggregate, Biodentin) to seal after apicoectomy is to establish an effective barrier between the root canal and the periapical tissues when a conventional orthograde seal is not possible. An ideal root end filling material would adhere and adapt to the walls of root end preparation, prevent leakage of microorganisms and their toxins into the periradicular tissues, be biocompatible, be insoluble in tissue fluids and dimensionally stable and remain unaffected by the presence of moisture.

IV. Conclusion

In this case report was done to evaluate the effectiveness of two newer different root end filling materials (Biodentin and Mineral Trioxide Aggregate) in relation to their healing rate ability. In this study periapical surgery was done and pre-operative and post-operative cone beam computed tomography of lesion was taken (follow-up of 3 Month, 6 Month and 9 Month), and it was concluded that patient was asymptomatic clinically and radiographically after the surgery.
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Bibliography


[7]. Asgary,S, J.E.Mohammad, P.Masoud, T.Hassan-Sealing ability of three commercial Mineral Trioxide Aggregate and an experimental root end filling material. IEJ-2006:1(3);101-105