

## PERI APICAL ENDODONTIC SURGERY - TWO YEAR FOLLOW UP: A CASE REPORT

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### ABSTRACT

The endodontic treatment of necrotic anterior teeth after trauma remains complicated because of divergent root walls, thin dentinal walls and frequent lesions. The surgical endodontic treatment of teeth are well documented which are characterized by necrosis and infection in the presence of older fibrous and extensive lesion. The purpose of this paper is to report a two year follow up of a twelve years old patient whose tooth was treated for periapical lesion of endodontic origin by surgical endodontic procedure.

**KEYWORDS:** Apicectomy, Glass ionomer cement, Surgical endodontics

### INTRODUCTION

Endodontic surgery encompasses surgical procedures performed to remove the causative agents of periradicular pathosis and to restore the periodontium to a state of biologic and functional health.

Surgical endodontics is a reliable method for the treatment of teeth with periapical lesions that do not respond to conventional root canal treatment or when orthograde treatment is not feasible<sup>1</sup>. The purpose of this paper is to report a two year follow up of a twelve year old patient whose tooth was treated for periapical lesion of endodontic origin by surgical endodontic procedure.

### case report

A 12- year old male patient reported to our Department following trauma to the maxillary incisors. Trauma occurred due to fall while playing nine months ago. Patient complained of pain since three to four months which was dull, intermittent but subsided on taking medication. He also complained of an intraoral swelling since two months associated with intermittent pus discharge. Past medical history was non-contributory. General physical examination revealed that the patient was moderately built and nourished. Intra oral examination revealed Ellis class III fracture with 21 and Ellis class I fracture with 11 (Fig.1). Intraoral periapical radiograph showed large periapical radiolucency present in relation to 21 and 22 (Fig. 2). Teeth were checked for vitality where 21 and 22 proved to be nonvital. The treatment plan included periapical endodontic surgery in relation to 21, root

canal treatment in relation to 22 and composite restoration in relation to 11. The patient was then subjected to investigations. Haematological and biochemical laboratory tests were within normal limits. Pre operatively patient was under antibiotic and analgesic coverage. Access cavity opening and biomechanical preparation was done in relation to 21 and 22, and then patient was recalled for surgical procedure.

### Endodontic Surgery

Local anaesthesia was administered. Trapezoidal flap was formed by an intrasulcular, horizontal incision and two vertical releasing incisions using 15 no. B. P. blade. The flap was then reflected using periosteal elevator to gain access to the periapical region (Fig.3). Osteotomy was done using surgical length burs; periradicular curettage was performed using surgical bone curettes and periodontal curettes. Root canal of 21 was obturated with gutta-percha and root apex was resected with root end retropreparation (Fig.4). Retrograde filling was done with Glass Ionomer cement and orthograde restoration was done. Trapezoidal flap was then repositioned and secured with interrupted sutures. Intraoral periapical radiograph showed well obturated 21 (Fig. 5). The lateral incisor (22) was also obturated next day with gutta-percha. Post-operatively antibiotics and analgesics were continued along with 2% chlorhexidine mouthwash. Sutures were removed after seven days of surgery.



Fig.1. photograph showing the fracture of 11 and 21.

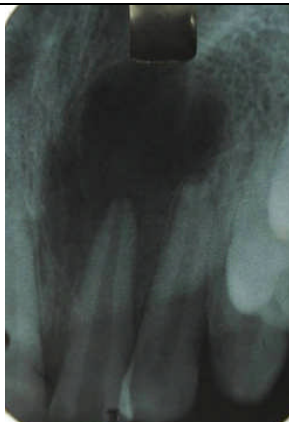


Fig.2. periapical radiolucency in relation to 21 and 22



Fig.3. Access to the periapical region

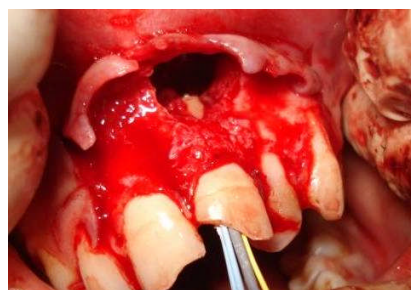


Fig.4. Retro-preparation, obturation and root apex resection of 21



Fig. 5. Intraoral periapical radiograph showed well obturated 21



Fig.6. Intraoral periapical radiograph after 2 year follow-up showing complete healing

Follow up was done every month till 6 months after the surgery, then every 3 months for two years. After 2 year follow-up intraoral periapical radiograph showed complete healing without any signs of recurrence of infection (Fig. 6).

**Discussion**

The rationale for performing surgical endodontics is the elimination of periradicular disease where this can't be achieved by non-surgical means. The objective of surgical approach are to remove diseased tissue, debride the canal system as far as possible and to seal the cavity or defect to prevent or reduce the spread of microorganism in the periradicular tissues, thereby providing an environment conducive of regeneration of a normal periodontal apparatus<sup>2</sup>.

The advantages of this surgical approach are rapidity of treatment, with fewer appointments, immediate suppression of periapical lesions, an efficient and reliable apical barrier, ensuring better and easier three-dimensional canal filling<sup>3</sup>.

The aim of retrograde filling material is to fill the apical canal space and to obtain a hermetic seal between the periodontium and root canal system. Several materials have been suggested for root end filling including Amalgam, Gutta-percha, Zinc oxide eugenol cement, G.I.C., Gold foil pellet, Composite resin and M.T.A etc<sup>3</sup>.

The characteristics that let us to use auto polymerizable GIC for retrofilling are chemical adherence to the dentin resulting in good sealing ability, biocompatibility with apical tissues, little tendency to dissolve in tissue fluids after setting,

ease of handling and of insertion because of its condensable and autopolymerizable qualities<sup>4</sup>. In our case GIC was also injected into the canal walls around the gutta-percha cone in order to strengthen the thin canal walls. This also reduces the risk of root fracture. Nevertheless, surgical endodontics is indicated in 5% of all endodontic patients. The success rate of it is high ranging from 73%-99%, depending upon the criteria used for evaluating the success<sup>5</sup>. Various other studies have also shown successful outcomes in over 80% of cases in recent years. This high success rate may be due to use of magnifying devices, microsurgery instruments ultrasonic retrotips and improved root-end filling material<sup>6,7,8</sup>.

### CONCLUSION

The outcome of periradicular surgery is favourable when performed with correct surgical skill. In the majority of the cases, the time to successful radiological healing is estimated to be within 1 year, and further investigations should be carried out to determine other key factors influencing the quality of the healing process.

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