



A CASE REPORT ON AN APICOECTOMY FOLLOWED BY RETROGRADE FILLING

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Abstract :-

Radicular cysts are one of the most common cysts in the oral cavity, and they are usually preceded by trauma or an infectious illness, with expansion following. Several therapeutic approaches have recently been implemented in order to improve the postoperative state and speed up the healing and regeneration process in the affected area. The ultimate goal of endodontic treatment is to generate favourable periradicular tissue healing conditions. In most cases, nonsurgical endodontic treatment is the most predictable option, however surgery may be necessary for teeth with persistent periradicular pathosis that has not responded to nonsurgical treatment. The purpose of this essay is to emphasise the possibility of a good surgical endodontic treatment outcome. Periradicular surgery can be a predictable, cost-effective option to tooth extraction and replacement with good patient selection and operator expertise.

Key Words :-

Apicoectomy, Radicular cyst, Peri radicular tissue, Endodontic surgery.

Introduction

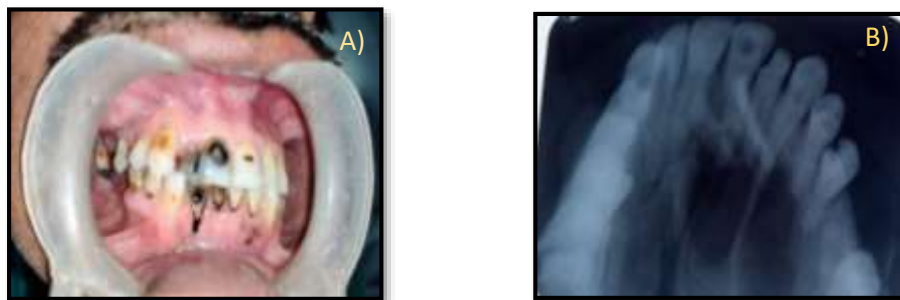
The success rate of advanced endodontic microsurgery is relatively high. When the prognosis of secondary non-surgical root canal treatment is uncertain, it is the recommended therapy for endodontically treated teeth with uncertain periapical lesions.¹ The aim of traditional endodontic treatment is to eradicate bacteria from the root canal system and develop strong barriers to root recontamination. Cleaning, shaping, and filling of the entire root canal system are considered key procedures in endodontic therapy in order to achieve success.² In most cases, nonsurgical endodontic treatment is the best alternative, however surgery may be necessary for teeth with persistent periradicular pathosis which hasn't responded to nonsurgical treatment. Surgical root canal therapy, including root-end resection, has been used since the mid-nineteenth century. Apical surgery is used to treat a tooth that has a periapical or periradicular lesion that cannot be treated with an orthograde endodontic technique. Apical surgery is often used as a last option to save a tooth when traditional endodontic retreatment is not possible or is accompanied with therapeutic risks (Kim and Kratchman, 2006).³ An apicoectomy was well defined in 1884 by J. Farrar as “a bold act, which removes the entire cause [of disease] and which will lead to a permanent cure may not be the best in the end, but the most humane.” According to Black, the root-resection technique (amputation of the root apex) originated as a treatment for “pyorrhea alveolaris” complicated by a dental abscess in the late years of the 19th century as a valid alternative to a dental extraction.⁴ The main goal is to seal the canal system from the periradicular tissues at the apical foramen. To do so, the apical section of the root must be resected to gain access to the root canal, hence the term. The purpose of resection is to expose the root surface so that the apical limit of the canal can be visually evaluated and access for retrograde cavity preparation can be gained. Approximately 3 mm of the root is removed, including about all of the lateral canals. For two reasons, root end resection must be used in conjunction with orthograde root therapy. To begin with, a retrograde root-filling procedure has a very slim likelihood of successfully sealing all lateral contacts between the canal and the periodontal ligament.. Second, because all root-filling materials are irritating to the tissues to some level, the amount of root-filling material exposed will be higher, impacting long-term success. Mineral trioxide aggregate (MTA), a calcium silicate-based substance which has demonstrated good biocompatibility and sealing capabilities.^{5,6}

Case Report

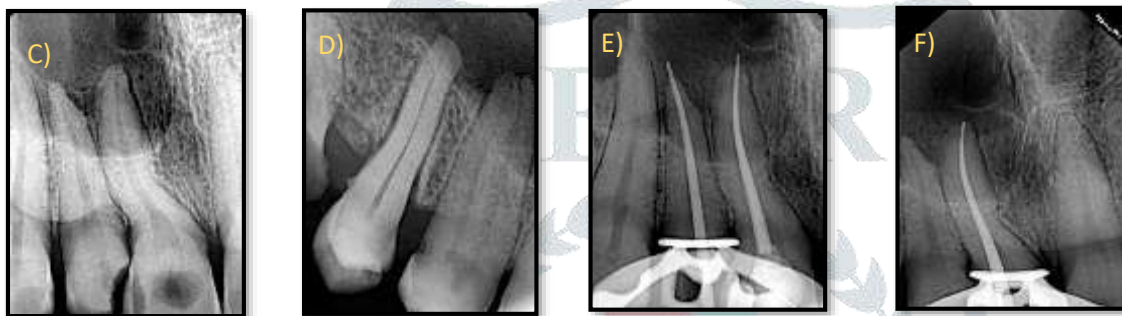
A 47 year old male patient was referred to a department of conservative dentistry and endodontic with chief complain of swelling in upper front right region since 1 month. Patient was a relatively asymptomatic before 1 month than he felt swelling in upper front region of jaw. Patient had past dental history showed that sinus track present and pus discharge before 1 month. Patient has habit of tobacco chewing since 8 year. Clinical examination revealed moderate percussion sensitivity and swelling present on infra orbital region on right side. Periodontal probing and mobility were within normal limits when compared to contralateral and adjacent teeth. The radiographic examination revealed periapical radiolucency 7 - 8 mm in diameter irt 11-17.

On the basis of the history and clinical and radiographic examination, a diagnosis was chronic focal sclerosing osteomyelitis irt 11-17. And found final diagnosis as Radicular

cyst irt 11-17. Root canal treatment was done irt 11-17 with intentionally 2mm above Obturation from normal working length. The treatment plan was offered to perform FNAC of the lesion followed by Cyst enucleation with Apicoectomy irt 11-17. Written consent was obtained.



A&B) Pre-operative View and Pre-operative Radiograph



C,D,E &F) Root canal treatment done



G) incision given & Flap raised

H&I) Window created at apex



J&K) Retrograde cavity preparation MTA retro filling done

L) Flap approximation done and sutures given



M) 10 days follow up



N) 3 Months follow up

Discussion

Endodontic surgery entails the removal of pathological periapical tissue from root surface (including apical accessory canals) followed by sealing against pathologic agents, with the goal of restoring tissue health, regeneration and creation of new tooth structural support.² When needed, periapical surgery comprises the removal of diseased soft tissue, root resection followed by retrograde root filling and the placement of various graft materials to aid in the creation of new bone at the defect location. Traditionally, several materials were used to obturate the root end. Mineral Trioxide Aggregate is a new root-end filling material that has attracted a lot of interest recently. Torabinejad et al introduced Mineral trioxide aggregate (MTA) as a root-end filling material in 1993. MTA was found to have good sealing properties and to enhance osteoblast activity. It has an antibacterial effect and was less cytotoxic than amalgam, IRM, or SuperEBA. MTA induced much less inflammation in dogs and monkeys than amalgam, according to research. Cementum bridges formed right over the MTA root-end fillings, exhibiting the material's tissue friendliness and possible cementogenic property.^{3,4} According to some research, this substance causes cementogenesis by causing new cementum to form on the surface on the retrofilling material. Several studies found that MTA showed excellent apical sealing and proved its superiority over other generally utilised materials. MTA-Angelus marginal adaptation was

superior to the other materials evaluated. MTA, on the other hand, contains bismuth oxide, which must be considered when utilising this cement as a root-end filling material.^{5,6} Anatomical examination of the root apex revealed that removing at least 3 mm of the root-end is required to eliminate 98% of the apical ramifications and 93% of the lateral canals.^{7,8} MTA promoted cementum development in 23% of specimens after 2-5 weeks of periapical surgery, while more than 80% of root-end filled cavities with MTA showed deposition of cementum 10–18 weeks after surgery, according to Parirokh and and Torabinejad.⁹

Conclusion

The root canal filling material determines the success of periapical surgery. That is, the material should be dimensionally stable, non absorbable, non-cytotoxic in nature, biocompatible, easily handled, antibacterial, moisture resistant and induce cementogenesis.

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Nil

Conflicts of interest :-

There are no conflicts of interest.

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