

Treatment of a large periapical lesion with impacted supernumerary tooth - A case report

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INTRODUCTION

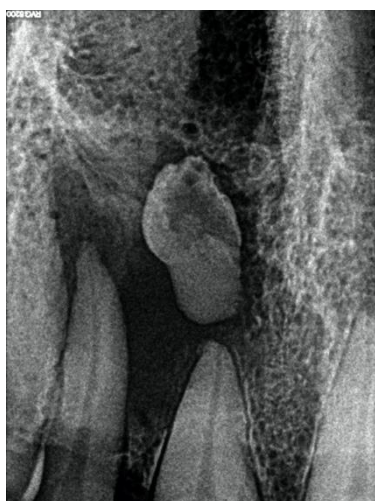
Periapical surgery is an accepted treatment modality in treatment of large periapical lesions not responding to primary or secondary non-surgical root canal therapy. Traditional root end surgeries were unpredictable with limited prognosis (Setzer *et al.*, 2010). With the advent of dental operating microscopes and ultrasonics, the prognosis of root end surgeries has risen sharply. Traditional root end surgeries are replaced with the new term called endodontic microsurgery. Under magnification, the endodontists are able to detect areas (i.e. fins, fissures, deltas, apical ramifications, missed canals, unprepared canals, and extruded materials) which are not amenable to orthograde cleaning and shaping procedures of the non-surgical root canal therapy (Setzer *et al.*, 2011). Ultrasonics have contributed significantly toward the minimal invasive approach in root end surgeries. Ultrasonic tips are small, handpiece is at a considerable distance from the working tip and the tips are bent in ways to assist root end preparation with respect to the long axis of the root. Hence ultrasonics increase visibility, improve ergonomics, help in minimal osteotomy and precise root end preparation (Tawil, 2016). A mesio-dense is a supernumerary tooth which is present at the midline between the maxillary central incisors. Only 25% of the supernumerary teeth are erupted and the remaining are impacted. Around 62.4% of the supernumerary teeth occur in pre-maxillary region. The impacted supernumerary teeth can be impacted in the deep palatal region. A supernumerary tooth can also be associated with an odontogenic cyst, commonly a Dentigerous cyst. A Cyst can be associated with expansion of cortical plate and displacement of one to several teeth in the jaw. (Lustmann and Bodner, no date) (Hasan, Ahmed and Reddy, 2014) (Mohan *et al.*, 2013)

CASE REPORT

A 45-year-old female patient named Nirmala reported to dept of conservative dentistry and endodontics with pain in her upper front tooth region for one month. Patient gave history of trauma when she was 7 years old. Patient presented with spontaneous, intermittent, dull pain radiating towards nasal and cheek region which was relieved with over the counter NSAIDS. On examination patient presented mild swelling involving right central incisor, lateral incisor and canine with obliteration of the buccal vestibule. Pain was elicited on palpation of swelling. There was no color change associated with the swelling. Right central and lateral incisors showed no response toward electric and cold pulp tests. There was no sign of pus drainage or sinus formation. Radiographic examination revealed a large periapical radiolucency associated with central and lateral incisors. The radiolucency had diffuse, irregular margins extending from the roots of central incisor mesially to roots of lateral incisors distally. Superiorly the swelling ended below the nasal floor and inferiorly around 3mm from the periosteum. An impacted supernumerary tooth was visible superiorly and in between the roots of central and lateral incisors. The supernumerary tooth was involved with the radiolucency.

PROCEDURE

A decision to perform non-surgical root canal therapy was taken after explaining the benefits and drawbacks as well as taking informed consent from the patient. Root canal therapy was completed in two sittings in central as well as lateral incisors. All the procedures were performed under strict isolation and aseptic protocol. After access and working length determination, the canals were negotiated with no 10 K file and prepared with Neo endo flex files (Gold martensitic file system) till no 45, 4% taper.



Pre-operative radiograph



Pre-obturation radiograph

Calcium hydroxide dressing and temporary restoration was given and patient was recalled after 7 days. Since patient was asymptomatic, Calcium hydroxide was removed from the canal and obturation was completed using lateral compaction technique. The access was restored with bonded composite restorations. Patient was discharged and was recalled after three months. On recall after three months, patient showed mild, dull, lingering and intermittent pain around central and lateral incisors, with persistent mild swelling. On radiographic examination, patient showed no changes in terms of healing. After discussing with the patient, a periapical surgery was planned which included root end resection and removal of supernumerary tooth in both central and lateral incisor. A full mucoperiosteal flap was raised. The pathology had involved the buccal cortical plate. Buccal cortical bone involved in the pathology was enlarged to facilitate proper removal of granulation tissue. The supernumerary tooth was visible once the superficial tissue was removed. The tissue along with the tooth was removed in toto. The cavity was examined and thoroughly cleaned. The root tip was cut up to 3mm and a 3mm depth class 1 cavity was prepared using ultrasonics in the root canal along the long axis of the root. The cavity was filled with MTA. The mucoperiosteal flap was placed back and 3-0-gauge surgical braided black silk suture was used for suturing. Post-operative instructions were given to the patient. Sutures were removed after 7 days. Patient was recalled after 3months month.



Mucoperiosteal flap raised



Supernumerary tooth inside the pathology



Supernumerary tooth and the pathology were removed and cavity was cleaned with saline.



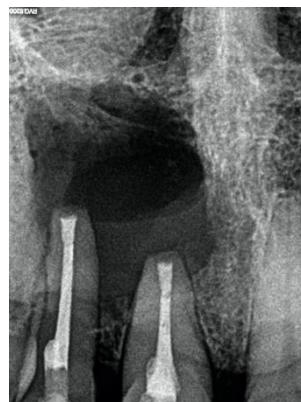
Root resection, root end preparation followed by MTA root end fill.



Supernumerary tooth



Supernumerary tooth



3-month follow up.

On recall after one month, patient was completely asymptomatic, with no signs of swelling or discomfort. Soft tissue healing had occurred with no sign of defects. Radiographic examination revealed signs of healing although marked changes were not visible.

DISCUSSION

Modern endodontic microsurgery has become a paradigm shift in terms of preservation of natural dentition instead of implants. With the advent of calcium silicate bioceramics along with microscopes and ultrasonics, the endodontic microsurgery has become an indispensable part of modern endodontics (Floratos and Kim, 2017). The above case represents a rare scenario in which a supernumerary tooth was involved along with periapical periodontitis. The supernumerary tooth can act as a nidus of infection in above cases. Although a non-surgical root canal therapy was attempted first, the infection had already spread to the supernumerary tooth which could not be accessed through non-surgical root canal therapy. This may have been responsible for persistent symptoms experienced by the patient. Once the supernumerary tooth along with the pathology was removed, patient experienced improvement followed by complete cessation of pain and swelling.

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