Large periapical lesion: Healing without knife and incision

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ABSTRACT
Three dimensional obturation of root space has always yielded good results with excellent prognosis. Though endodontic surgery (retrograde filling) is much advocated procedure for eradication of large periapical lesions but orthograde root canal therapy, if performed deleteriously, giving due respect to root canal anatomy, can sometimes resolve the periapical pathosis completely with regeneration of bone. This paper highlights a few cases of large periapical pathosis which were resolved conservatively by endodontic procedure.

Keywords: Three dimensional obturation, retrograde filling, orthograde root canal therapy, periapical pathosis.
INTRODUCTION
Periapical infection usually occurs as a consequence of caries, periodontal disease, operative dental procedures or trauma. It involves mixed, predominantly gram-negative anaerobic bacterial flora, often causing total pulp necrosis and stimulating an immune response in the periapical tissues.

In recent times, fewer patients need periapical surgery. Greater awareness of complexities of the root canal system has led to the development of newer techniques, instruments and materials, which have greatly enhanced the clinician’s abilities. Careful interpretation of preoperative radiographs and an awareness of root canal morphology are necessary for adequate access and infection control.

CASE SERIES
CASE I
A 49 year old male patient reported to the dept. with dull pain and swelling in lower right back region of jaw. His medical history was not contributory. A clinical examination showed that his lower right 2nd premolar and 1st molar were grossly carious. Soft tissue on the buccal aspect showed mild recession. Upon probing with a Williams probe periodontal bone loss was evident. Both the teeth failed the vitality test. A periapical radiograph demonstrated a large radiolucent lesion around the furcation area of 1st molar and at the apex of mesial root. Access opening was done in both the teeth and canals were prepared according to the standard protocol using a step back technique. Copious irrigation with normal saline and 0.2% chlorhexidine was done after each file. Calcium hydroxide dressing was used as intracanal medicament which was delivered into the canals with a lentulo-spiral and a closed dressing was given (for a week time; repeated for weeping canals) Later canals were obturated with gutta percha points and sealer using lateral condensation technique. The status of obturation was verified by an IOPA radiograph. Re-evaluation x-rays were taken at 3 months and 6 months interval (Figure 1a, 1b, 1c, 1d).
CASE II

A 45 year old male patient reported to the out-patient department of conservative dentistry and endodontics, with mild pain and swelling in upper front region of jaw since 6 months. He revealed that he was getting treated privately for the same tooth which was evident by apparent tooth preparation for jacket crowns. A clinical examination showed that his upper central incisors were exposed. A periapical radiograph demonstrated a large radiolucent area around the apex of both the central incisors (Figure 2a, 2b, 2c, 2d).
Case III
A 22 year old female patient reported to the department of conservative dentistry & endodontics, with broken tooth since 2 months. She had a history of trauma of the same duration. A clinical examination showed that her 41 & 42 were exposed and tender. A periapical radiograph demonstrated a large radiolucent lesion around the apex of 41 (Figure 3a, 3b, 3c, 3d).
Case IV
A 20 year old female patient reported to the department of conservative dentistry & endodontics, with discolored tooth in front region of upper jaw since 1 year. She gave a history of blunt injury to her jaw. A clinical examination showed that her upper right central & lateral incisors were discolored. A periapical radiograph demonstrated a large radiolucent lesion around the apices of both the teeth. (Figure 4a, 4b, 4c, 4d).
Case V
An 18 year old male patient reported to the department of conservative dentistry & endodontics, with pain and swelling in right back region of lower jaw. His medical history was not contributory. A clinical examination showed that his 46 was grossly carious. Tooth was tender and patient also complaints of pain on biting from that side. A periapical radiograph demonstrated a large radiolucent lesion around the furcation area of 46 and on the distal root. Root canal treatment was carried out with a crown down technique according to standard protocol. Rest of the treatment was kept same as in the other cases except the technique used for canal preparation. Re-evaluation x-rays were taken at same time interval. Interestingly, NO periodontal intervention was performed during the course of our treatment still there is healing shown in the proximal bony lesion. (Figure 5a, 5b, 5c, 5d).
DISCUSSION
In a necrotic pulp, the environment becomes suitable for microorganisms to multiply and release various toxins, initiating an inflammatory response leading to formation of a periapical lesion. Because of presence of immunologically competent cells and various immunoglobulins within the lesion, immunopathologic mechanisms also play a role in the initiation of periapical lesion. Rich blood supply, lymphatic drainage and abundant undifferentiated cells present in the periapical tissues are involved in the process of inflammation and repair. Therefore, the periapical tissues have the potential to heal. Hence the first line of treatment of periapical lesions should be directed towards the removal of the causative factors. Calcium hydroxide is the most common intracanal dressing used these days. Though exact mechanism of action of calcium hydroxide is still speculative, it is suggested that the action of calcium hydroxide beyond the apex may be fourfold:

- __anti-inflammatory activity__
- __neutralisation of acid products__
- __activation of the alkaline phosphatase__
- __antibacterial action__

Treatment with calcium hydroxide reports high frequency of periapical healing, especially in young patients. In present cases, periapical healing appeared to be occurring 1 month after the root canal obturation and continued during the 3 month observation period. Radiographic signs such as density changed within the lesion, trabecular reformation confirmed healing, associated with the clinical finding that the tooth was asymptomatic and soft tissue was healthy.

CONCLUSION
Despite the size of periapical radiolucency non-surgical root canal treatment should be attempted first rather than going for elective surgical procedure. Elective surgical procedure automatically conveys that the procedure is not the default procedure but has definite albeit limited indications.

REFERENCES