ENDODONTIC MANAGEMENT OF UPPER CENTRAL INCISOR USING MINERAL TRIOXIDE AGGREGATE AND SURGICAL DECOMPRESSION

1DS DINESH, MDS  
2A BALATANDAYOUDAM, MDS  
3R SATHYANARAYANAN, MDS  
4S BALAJI TANDRI, MDS

ABSTRACT

Maxillary central incisors with large periapical cystic lesions have been treated by conventional endodontic therapy combined with surgical decompression. Electing surgical enucleation may sometimes lead to inadvertent injury to adjacent teeth or structures. This retreatment case presented here was treated successfully using Mineral Trioxide Aggregate and surgical decompression.

INTRODUCTION

When conventional non-surgical root canal therapy fails in resolving the peri-radicular pathosis alternative strategies like non-surgical retreatment or periapical surgery are considered. In extensive peri-radicular lesions, surgical management may result in damage to adjacent vital structures, in which case marsupilization or tube decompression is indicated.

Marsupilization is actually described as ‘unroofing the outer wall of the cyst by making a surgical incision, evacuating its contents and establishing a large permanent opening by suturing the remaining part of the cystic membrane to the mucosal surface around the periphery of the opening.'

Decompression is favored because of lower morbidity and the fact that bony ingrowth occurs as the lesion shrinks in size, thus resulting in more normal bony contours after treatment is concluded.

This paper discusses retreatment of an upper central incisor using mineral trioxide aggregate and management of the large periradicular pathosis using surgical decompression.

CASE REPORT

A healthy 24 year old female patient was referred for evaluation based on the presence of swelling on the buccal attached gingiva over the right upper central and lateral incisor. Patient had a history of trauma 2 years back and was root canal treated in upper right central incisor and a ceramic crown placed.

Intra oral examination revealed a swelling in the labial vestibule in relation to tooth number 11 and 12 of the size 2x2 cms. The swelling was soft and fluctuant. Electric and thermal pulp vitality testing showed negative response in 12, while adjacent teeth showed normal response. Tooth number 12 responded positively to vertical percussion test. IOPA and occlusal view radiographs showed improper obturation with open apex in 11. The periapical radiolucency was 3x2cms in extent.

Root canal retreatment of 11 with apical closure using MTA and conventional root canal treatment in 12 followed by surgical decompression of the lesion was planned.

Following informed consent access was made through the ceramic crown in 11 and old obturating material removed. Access cavity was also prepared in 12. After proper working length determination the canals were cleaned and shaped followed by placement of mineral trioxide aggregate in 11 to close the apex. Calcium hydroxide intra canal medicament was placed in 12.

After a week both the teeth were obturated.

1 Associate professor, Dept of conservative dentistry  
2,3 Associate professor, Dept of oral and maxillofacial surgery  
4 Professor, Dept of conservative dentistry  
1,2,3,4 Adhiparasakthi Dental College & Hospital, Melmaruvathur, Tamil Nadu, India
A 1.5 cm vertical stab incision was made in between the root eminences of 11 and 12. Upon entry into the cystic cavity there was slight drainage of pus followed by copious drainage of straw colored fluid associated with cystic lesions. Lavage with sterile saline was accomplished and deep curettage was done to remove granulation tissue.

A radio opaque flanged cannula of length 2cms was inserted into the depth of the cavity. One 4-0 gut suture was placed above and below the drain to stabilize it.

The patient was instructed to irrigate through the lumen of the drain once daily with 0.12% chlorhexidine with a blunt hypodermic needle.

After 3 weeks as the patient insisted on removal of drain, it was removed.

The patient was instructed to irrigate through the healing aperture. The healing was almost complete in two weeks. The patient was recalled every 3 months for one year.

DISCUSSION

Periapical granuloma occurs due to host response to inflammation subsequent to infection of pulp tissues. Proliferation of epithelium within a granuloma has been known to be a response by the cell rests of malassez to inflammation.

The ‘nutritional deficiency theory’ postulates that connective tissue surrounding a ball of proliferating epithelium supplies its nutrition. If the epithelial proliferation proceeds too fast, the central cells within this ball of epithelium will degenerate and die, leading to a fluid - filled cavity within the epithelial mass.

The ‘abscess theory’ supposes that proliferation of epithelium traps various connective tissue elements (including inflammatory cells) that then necrose and lead to proteolytic activity, ultimately resulting in fluid filled cavity typical of a cyst.

Treating large periapical lesions range from conventional non surgical root canal treatment with long term calcium hydroxide therapy to various surgical interventions.

Decompression procedure reduces the size of the lesion avoiding unnecessary surgical intervention, or if necessary limited to periapical tissue of the involved tooth. The procedure disrupts the integrity of lesion wall, eliminates internal osmotic pressure differential and promotes healing by osseous regeneration.

No clinical studies provide evidence relating to the correct time to remove cannula and allow channel to heal. Case reports indicate that the length of the time cannula was inserted for decompression varies from 5 weeks to 14 months. As a practical matter, many patients may not be willing to undergo prolonged treatment of this sort. In this case even after informed consent, the patient wanted to remove the drain in 3 weeks.

The following radiographic and clinical criteria are suggested for termination of decompression. The radiographs should reveal a thin delicate trabecular pattern throughout the radiolucent area and the cavity should show clinical evidence of progressive reduction in size resulting in need to reduce the length of cannula several times. There should be no untoward signs and symptoms of the lesions like purulent discharge, pain etc.

REFERENCES