



RESEARCH ARTICLE

PERIO-ENDO-PROSTHO INTERACTIONS: MANAGEMENT OF ADVANCED ENDO-PERIO LESION IN MANDIBULAR MOLARS USING HEMISECTION

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ABSTRACT

With the advances in technology, most patients desire to maintain their natural dentition, when earlier they would have chosen extraction. Endo-perio lesions can be successfully managed with multidisciplinary approach and choice of treatment. Hemisection is one such procedure, where a multi-rooted tooth is sectioned with its crown portion and removed for cases with a loss of periodontal attachment and the original tooth structure is retained and restored with a fixed prosthesis. But for long term success, careful case selection is of prime importance. This case report aims at reviewing the management of endo-perio lesions and presents a case report of hemisection.

INTRODUCTION

Endodontic and periodontal tissue structures have a close relationship through the presence of the apical foramen, accessory and lateral canals (Burch, 1974). This relationship may invariably lead to the spread of infection in either direction, which results in any of the various manifestations of endo-perio lesions (Bergenholtz, 1997). An accurate diagnosis is important for management of endo-perio lesions. To achieve a diagnosis, it is important to completely cover and examine endodontic and periodontal components. Management of periodontally compromised extensively decayed molars is challenging, and is limited to dental extraction followed by replacement with implants (Bergenholtz, 2012). An option which can be considered for management of endo-perio lesions for multi-rooted teeth is hemisection which facilitates preservation of tooth structure and alveolar bone (Shetty, 2011). This article aims to review the guidelines for management of endo-perio lesions through hemisection and presents a case report of the same.

Management of Endo-Perio Lesions: Various classifications have been given for endo-perio lesions. Classifications by Muschelknauss et al (1975) and Guldener et al (1975) are

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based on the origin of the lesion (Table 1). Geurtsen et al (1985) gave a classification based on the therapeutic and prognostic aspects (Table 2).

Table 1. Classification of endo-perio lesions by Mutschelknauss and Guldener et al. (1975, 1985)

Classification according to Mutschelknauss (1975) and Guldener (1975):

1. Lesions of Endodontic origin with periodontal involvement
a) Expansion of pulp lesion, either periapically or para/interradicularly via the accessory and lateral canals.
b) Iatrogenic by perforation
2. Lesions of Periodontal origin with endodontic involvement
a) Iatrogenic by periodontal therapy requires hemisection/apicectomy
b) Retrograde pulp infection
3. Combined endodontic-periodontal lesions where two independent defects have merged into one

Table 2. Classification of endo-perio lesions by Geurtsen et al. (1985)

Classification according to Geurtsen (1985):

1. Combined lesions requiring only a single root canal treatment (favorable prognosis)
2. Combined lesions requiring both endodontic and periodontal treatments (less favorable prognosis)
3. Combined lesions with little hope of successful treatment (poor prognosis)

An endo-perio lesion of endodontic origin spreads to periodontal tissues via apical foramen and progresses along the periodontal ligament apically to a coronal level which causes a sinus opening and finally leads to formation of an osseous defect. If the inflammatory focus is left untreated, it continues to persist for an extended period and the epithelial tissue migrates into the periodontal pocket and results in a combined lesion (1994).

The treatment concept developed by Haueisen *et al* (1999) for endo-perio lesions combines both aspects of endodontic and periodontal treatments in a sequence and time- defined intervals (Figure 1). This takes into consideration both the etiology of the lesion as well as the healing period for the treatments. Hemisection should be considered in conditions such as severe vertical bone loss around a single root, destruction of the furcation, difficulty to maintain adequate

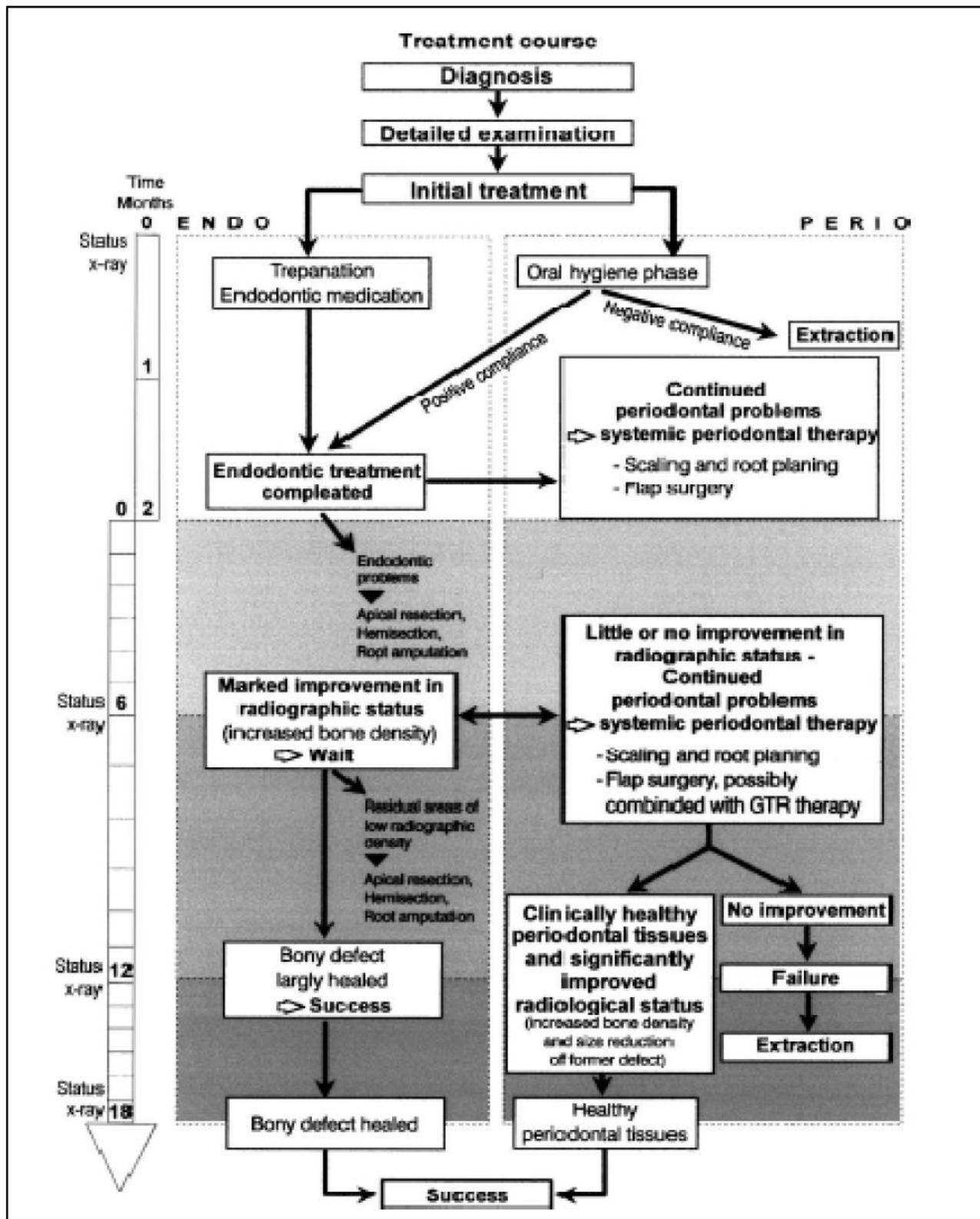


Figure 1. Treatment concept for endo-perio lesions given by Haueisen *et al*. (1999)

hygiene in proximal areas, any unfavorable proximity to roots of adjacent teeth, and in root exposure due to dehiscence. The sequence of treatment to be followed for hemisection procedure includes primarily performing the root canal treatment of the remaining roots and restoring them with appropriate restorative material. Splinting with the adjacent tooth is done to prevent displacement. A fixed prosthodontic prosthesis follows this for the maintenance of the occlusal load (Saad, 2009).

Case Report

A 45 year old male patient reports with a chief complaint of pain on the right lower back tooth for one month. On examination, it was found that 47 was decayed with caries involving the pulp, and pocket depth of 10mm was seen in relation to 47, with tenderness on percussion.



Case Picture 1. Preoperative View



Case Picture 2. Preoperative Buccal View



Case Picture 3. Radiographic View

Radiographic examination reveals radiolucency involving the distal root of 47. A root canal treatment was planned for the patient which was to be followed by hemisection. The defect was packed with OSSIFI© alloplast bone graft material, and PERIOLCOL© membrane was used to cover the defect and sutured. After sufficient healing, the tooth was restored using a

modified crown. This modified prosthesis was designed to facilitate maintenance of hygiene in proximal areas, maintain occlusal load, and permit conservation of tooth structure and prevent unnecessary tooth preparation. Patient was reviewed after six weeks and healing was satisfactory.



Case Picture 4. Sectioning of distal segment of 47



Case Picture 5. Distal segment of 47



Case Picture 6. Defect debridement, Packed with bone graft, and covered with GTR membrane



Case Picture 7. Postoperative View



Case Picture 8. Postoperative View with restoration after 3 months

Conclusion

An accurate diagnosis is the key to successful management of endo-perio lesions. The endodontic treatment should be given importance in case of doubtful etiology, followed by a waiting period until a decision for further treatment can be done. Hemisection can be considered as a conservative alternative for management of endo-perio lesions involving mandibular molars. Satisfactory healing was reported in this case contributed by the use of modified prosthesis that also lead to ease of hygiene maintenance for the patient.

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