

SALVAGING OF A TRUE ENDO-PERIO LESION

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Abstract

The pathways for the spread of bacteria between pulpal and periodontal tissues have been discussed with controversy. Treatment and prognosis of endodontic-periodontal diseases vary and depend on the cause and the correct diagnosis of each specific condition.

One treatment modality in such cases involves separation of two roots in the furcation area with selected removal of one root. This decision is based on the extent and pattern of bony loss, root trunk and root length, ability to eliminate the osseous defect, and endodontic and restorative considerations.

This article is an attempt to provide a rational approach to the endo-perio question in order to treat these lesions with predictable success.

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Introduction

The relationship between the pulp and the periodontium has been extensively studied; however, queries regarding the diagnosis, prognosis and treatment are raised time and again. Both pulpal and periodontal infections can coexist in the same tooth, termed combined lesions, where the treatment depends on the degree of involvement of the tissues.¹

The degree of attachment loss in this type of lesion is invariably large and the prognosis is guarded. In such types of lesion, hemisection can be considered as a treatment alternative if not all roots are severely involved. A tooth with a short root trunk is a good candidate for hemisection; the amount of remaining periodontal tissue

support following separation and resection is often sufficient to ensure the stability of the remaining root cone.²

Further consideration has to be laid on the dimension between the two roots of a tooth to be hemisected. The retention of both molar roots can complicate the final restoration and hence affect the long term prognosis of the tooth. This is mainly because of the virtual impossibility to provide ideal embrasure area between the two roots for effective oral hygiene and maintenance.

The main advantage of this modality is that it helps in the conversion of furcation-involved molars into non-furcated single-root teeth and provide a favorable environment for oral hygiene for patients and clinicians.³

However a large number of factors govern the success rate of the hemisected roots. These include the amount of supporting tissue around the roots, the root and root canal anatomy in relation to the endodontic treatment, the periapical condition, and the mobility of each separated root.⁴

In this paper a case is presented in which grossly carious tooth with furcation

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involvement was saved by a planned treatment approach involving endodontic therapy followed by a healing period of three months. After that, periodontal surgery was carried out in which mesial half of tooth was extracted and the remaining tooth was restored as premolar. Subsequently a fixed prosthesis was placed which completed the treatment successfully.

Case Report

A 35 year old male reported to the Department of Periodontology, Subharti Dental College, Meerut with the complaint of pain in left mandibular first molar and reported that the pain occurs spontaneously and was relieved on taking medications. The pain was non radiating type and the patient was having this complaint from the last 6 months.

There was absence of any systemic involvement. On clinical examination the tooth was tender on percussion and was grossly carious. Periodontal probing revealed isolated 9 mm pocket in the mid-buccal region of 37 (Fig 1).



Figure 1. Pre operative probing depth.

On radiographic examination, the intraoral periapical radiograph revealed radiolucency at the furcation and in the periapical area along with widening of the periodontal ligament space (Fig 2). Also there was extensive bone loss around the both the roots as well as involvement of the furcation area with loss of trabecular pattern of bone.

Treatment: Based on the clinical and radiographic examination it was decided that hemisection of the two roots should be carried

out after completion of endodontic therapy followed by fixed bridge of the tooth. The working length was determined and the canals were biomechanically prepared using stepback technique.



Figure 2. Pre operative IOPA.

The canals were obturated with lateral condensation method followed by composite restoration (Fig 3). This was followed by a healing period of three months. After that periodontal surgery was carried out involving reflection of full thickness mucoperiosteal flap after giving a crevicular incision from first premolar to third molar (Fig 4).



Figure 3. Post endodontic therapy IOPA.

Thorough mechanical debridement was done and granulation tissue was removed along with adequate bone exposure (Fig 5).

The vertical cut method was used to resect the crown with the root. A long shank tapered fissure carbide bur was used to make vertical cut till the furcation area was reached (Fig 6).



Figure 4. Incision given.



Figure 7. Hemisection done.



Figure 5. Debridement done.



Figure 8. Sutures given.



Figure 6. Vertical cut given.

After the complete healing of the extraction socket, the tooth was restored with FPD on 36, 37, 38 so as to distribute the occlusal stresses (Fig 9).



Figure 9. Post FPD IOPA.

Discussion

The treatment of grossly carious tooth involves combination of periodontics, endodontic and restorative dentistry, and so that the teeth are retained in whole or in part. Such teeth can be useful as independent units of mastication or as abutments in simple fixed bridges.

Continued periodontal breakdown may lead to total loss of tooth unless these defects can be repaired or eliminated and health of the tissues restored. Basaraba et al⁵ advocated the use of tooth resection procedures to preserve as much tooth structure as possible rather than sacrificing the whole tooth. Shah et al⁶ proposed that after hemisection the separated roots along with its crown part to be restored as premolars.

Selected root removal allows improved access for homecare and plaque control with resultant bone formation and reduced pocket depth. Further Minsk and Polson⁷ suggested that root resection can be a valuable procedure when the tooth in question has a very high strategic value or when there are specific problems that cannot be solved by other therapeutic approaches. Because root resection is very technique sensitive and complex, proper case selection is essential.⁸

The survival rate of resected molars might be influenced by a variety of factors. Lang and Tonetti⁹ suggested that long term survival rate of the hemisectioned tooth requires an evaluation of the risk factors for periodontal disease progression at the patient, tooth, and site level. They suggested that the three levels of risk assessment represented a logical sequence for the clinical evaluation to be performed before rendering treatment during maintenance. Further Shin-Young et al¹⁰ suggested that the bone support of the remaining roots at the time of surgery affected the survival rate of molars with periodontal problems.

The amount of bone support has been considered an important factor for the

retention of teeth; however, the critical level of bone support for the survival of resected molars was not identified.

Conclusions

The treatment strategy of a grossly carious tooth with furcation involvement should be properly planned before initiation of the treatment. Success of root resection procedures depend, to a large extent, on proper case selection.

In addition, when the tooth has lost part of its root support, it will require a restoration to permit it to function independently or to serve as an abutment for a splint or bridge. Thus hemisection should be more routinely considered as a treatment option for molars with periodontal, endodontic, restorative, or prosthetic problems.

Declaration of Interest

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