

HEMISECTION AS AN ALTERNATIVE TREATMENT FOR DECAYED MULTIROOTED TOOTH

Sunandan Mittal ¹, Tarun Kumar ², Ramta Bansal ³, Dilpreet Kaur ⁴

¹ Professor and Head
² Professor
^{3,4} Post graduate student
 Department of Conservative
 dentistry and Endodontics
 Dasmesh Institute of Research
 and Dental Sciences
 Faridkot – Punjab.

Abstract

Hemisection denotes removal or separation of root with its accompanying crown portion of mandibular molars. This procedure represents a form of conservative dentistry, aiming to retain as much of the original tooth structure as possible. The results are predictable and success rates are high. In this paper a case is presented in which hemisection was done because the tooth was grossly carious along with furcation involvement. Mesial half of tooth was extracted and the remaining tooth was restored as premolar which helped to reduce the masticatory load.

Key words

Hemisection, Mandibular Molars, Root Resection

INTRODUCTION

Hemisection (removal of one root) involves removing significantly compromised root structure and the associated coronal structure through deliberate excision.¹ Because of two roots present in mandibular molars, one half of the crown and associated root is removed. Thus tooth resection procedures are used to preserve as much tooth structure as possible rather than sacrificing the whole tooth. It differs from bicuspidization, in which a separation is made between the two roots in the furcation area without removal of any root. The separated roots along with its crown part are then restored as premolars². Selected root removal allows improved access for homecare and plaque control with resultant bone formation and reduced pocket depth. This procedure is indicated³

- If there is severe bone loss limited to one root or involvement of a Class III furcation that could produce a stable root after hemisection.
- If the patient is unable to perform appropriate oral hygiene in the area.
- Extensive exposure of the roots because of dehiscence is another indication for excision of one root.
- Indicated for failure of an abutment within a fixed prosthesis, provided a portion of the tooth can be retained to act as the abutment for the prosthesis.
- Untreatable endodontic failure due to perforations and broken instruments.
- Vertical root fracture confined to a single root of a multirooted tooth or any severe destructive process that is confined to a single root, including caries, external root resorption and trauma.

CASE REPORT:

A 30 years old male patient reported to the department with the complaint of pain in left mandibular first molar. On examination, the tooth was tender to percussion and was grossly carious. On probing the area, there was a deep periodontal pocket around the mesial root of the tooth. On radiographic examination, furcation involvement was evident. The bony support of distal root was completely intact (Fig. 1). It was decided that the mesial root should be hemisected after completion of endodontic therapy of the tooth.



Biomechanical preparation was done with in the distal root only (Figure 2).



Hemisection of the mesial root and crown was done with a vertical cut method. After vertical incision and sulcular incision, a mucoperiosteal flap was reflected. The crown was cut with a long shank, tapered fissure carbide bur till the furcation is reached (Figure 3). Once the separation was

Address For Correspondence:

Dr Sunandan Mittal M.D.S
 Professor and Head, Department of
 Conservative dentistry and Endodontics
 Dasmesh Institute of Research and
 Dental Sciences Faridkot – Punjab
 Contact – 91-1636-223983, +91-9814049751
 Email id: dr.sunandanmittal@yahoo.in



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Source of Support:None, Conflict of Interest: None declared

complete, the mesial half was extracted. The empty socket was thoroughly irrigated and the flap was sutured back into its position. After the complete healing of the extraction socket, the crown of the remaining tooth was restored with FPD on 45,46 so as to distribute the occlusal stresses (Figure 4).



DISCUSSION:

Before selecting a tooth for hemisection, patient's oral hygiene status, caries index and medical status should be considered. Also the accessibility of root furcation for ease of operation as well as good bone support for the remaining roots should be assessed. The furcation region is carefully smoothed, to allow proper cleansing and thus to prevent accumulation of plaque.⁴ Root fracture is the main cause of failure after hemisection, so occlusal modifications are required to balance the occlusal forces on the remaining root.⁵

Contraindications include the presence of a strong abutment tooth adjacent to the proposed hemisection, which could act as an abutment to prosthesis. The remaining root may be inoperable for the necessary root canal treatment⁶. Also, fusion or proximity of the roots may prevent their separation³.

Hemisection may be a suitable alternative to extraction and implant therapy and should be discussed with patients during consideration of treatment options

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