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Hemisection: Last Hope To Save Tooth

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Abstract: *Advances in dentistry, as well as the increased desire ofpatients to maintain their dentition, have lead to treatmentof teeth that once would have been removed. Hemisection is a removal of compromised root and the associated crown portion. It is one of the treatment options for preserving remaining part of molar having sound periodontium. 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. The present case report is a case of Hemisection in endodontic failure of mandibular first molar tooth with the pulp floor perforation with management with Hemisection.*

Keywords: *Hemisection, perforation, periodontium*

I. Introduction

Root canal treatment usually fails when treatment falls shortof acceptable standards. The reason many teeth do not respond toroot canal treatment is because of procedural errors that preventthe control and prevention of intracanal endodontic infection. Intruth, a procedural accident often impedes or makes it impossible toaccomplish appropriate intracanal procedures. Thus, there is potentialfor failure of root canal treatment when a procedural accident occursduring the treatment of infected teeth.1

Perforations are regarded as serious complications in dental practice and pose a number of diagnostic and management problems.2

Hemisection is the surgical separation of a multi-rooted tooth especially a mandibular molar through the furcation in such a way that a root and the associated portion of the crown may be removed.3, 4

The treatment goal is preservation of remaining tooth structure and restoration of the function.

Periodontal Indications for Hemisection

1. Severe vertical bone loss involving only one root of multi-rooted teeth.
2. Through and through furcation destruction.
3. Unfavourable proximity of roots of adjacent teeth, preventing adequate hygiene maintenance in proximal areas.
4. Severe root exposure due to dehiscence.

Endodontic and Restorative Indications for Hemisection

1. Prosthetic failure of abutments within a splint: If a single or multi-rooted tooth is periodontally involved within a fixed bridge, instead of removing the entire bridge, if the remaining abutment support is sufficient, the root of the involved tooth is extracted.
2. Endodontic failure: Hemisection is useful in cases in which there is perforation through the floor of the pulp chamber, or pulp canal of one of the roots of an endodontically involved tooth which cannot be instrumented.
3. Vertical fracture of one root: The prognosis of vertical fracture is hopeless. If vertical fracture traverses one root while the other roots are unaffected, the offending root may be amputed.
4. Severe destructive process: This may occur as a result of furcation or sub gingival caries, traumatic injury, and large root perforation during endodontic therapy.

The root morphology allows for surgical access and proper periodontal maintenance of the final restoration.5-11

Contraindication

a. Strong adjacent teeth available for bridge abutments asalternatives to hemisection.
b. Inoperable canals in root to be retained.
c. Root fusion-making separation impossible.

II. Case Report

A 41 yr female patient reported to dept of periodontics with partial endodontic treatment with reference for pulp floor perforation. Clinical examination revealed perforation of pulpal floor at furcation area. Radiographic examination revealed radiolucency at pulpal floor. (fig 1, 5)

The Hemisection was planned for the removal of distal root of mandibular first molarDuring the surgical procedure crevicular incision was given from 34 to 37. Full thickness mucoperiosteal flap was reflected.(fig 2) The mesial and distal roots were sectioned at the level of the furcation using long tapered fissure diamond. The distal root was extracted and the socket was irrigated adequately with normal saline to remove bony chips.(fig 3) The flap was replaced and simple interrupted sutures were placed. A finishing diamond bur was used to smoothen the distal surface of the mesial root and its coronal portion. The occlusal table was reduced in size to redirect the forces along the long axis of the mesial root. The surgical site was covered with a periodontal dressing. Four weeks following surgery, complete healing in the surgical site was observed.(fig 4, 6) Mesial half of mandibular first molar was selected as abutment as radiographic evaluation revealed adequate bone support Post surgically crown was placed with space for maintenance of oral hygiene.(fig 7, 8)

Fig 1: Pre operative

Fig 2: Flap reflection

Fig 3: Hemisection

Fig 4: Post surgical

Fig 5: Pre operative IOPA

Fig 6:Post operative IOPA

Fig 7 Post crown IOPA

Fig 8: Maintenance

III. Discussion

Hemisection is a useful alternative procedure to save those multi-rooted teeth which have been indicated for extraction. Before selecting a tooth for hemisection, patient's oral hygiene status, caries index and medical status should be considered. Also, accessibility of root furcation for easy separation as well as good bone support for the remaining root should be assessed. Park et al. have suggested that hemisection of molars with questionable prognosis can maintain the teeth without detectable bone loss for a long-term period, provided that the patient has optimal oral hygiene.12Saad et al. have also concluded that hemisection of a mandibular molar may be a suitable treatment option when the decay is restricted to one root and the other root is healthy and remaining portion of tooth can very well act as an abutment.13

The keys to long term success include thorough diagnosis, selection of patients with good oral hygiene, careful surgical and restorative management. Hemisection may be a suitable alternative to extraction and implant therapy and should be discussed with patients during consideration of treatment options

IV. Conclusion

In conclusion treatment planning of root resections is the joint responsibility of the endodontist and the periodontist. The technique of hemisection is one way to facilitate the treatment planning of mandibular molars that have exposed furcation areas conserving the remaining tooth structure. Proper case selection enhances the therapeutic success.

References

[1]. Siqueira JF Jr (2001) Aetiology of root canal treatment failure: why well-treatedteeth can fail. IntEndod J 34: 1-10.
[2]. Regan JD, Witherspoon DE, Gutmann JL (1998) Prevention, identification and management of tooth perforation. EndodPract 1: 24-40.
[3]. Parmar G, Vashi P. Hemisection: a case-report and review. Endodontology. 2003;15:26-9.
[4]. Jain A, Bahuguna R, Agarwal V. Hemisection as an Alternative Treatment for Resorbed Multirooted Tooth-A Case Report. Asian Journal of Oral Health & Allied Sciences. 2011;1(1):44-6.
[5]. Amit H, Mohan G, Ranjana M. HEMISECTION- A CASE REPORT. TMU J. Dent Vol. 1; Issue 4 Oct – Dec 2014.
[6]. Farley JR. Hemisection and bicuspidization of Molars. Tex Dent J 1974;92(6):4-5.
[7]. Haskell EW, Stanley HR. Vital gemisection of a mandibular second molar: a case report. J Am Dent Assoc 1981;102(4):503-506.
[8]. Abrams LL. Hemisection-Technique and Restoration.Dental Clinics of North America. 1974;18(2):15- 44.
[9]. Kim Y. Furcation Involvements: Therapeutic Considerations. CompendContinEduc Dent 1998;19(12):1236-1240.
[10]. Kryshtalskyj E. Root amputation and hemisection. indications, technique and restoration. J Can Dent Assoc 1986;52(4):307–308.
[11]. Green EN. Hemisection and Root Amputation. J Am Dent Assoc 1986;112(4):511-518.
[12]. Park J. Hemisection of teeth with questionable prognosis. Report of a case with seven-year results.Journal of the International Academy of Periodontology. 2009;11(3):214-9.
[13]. Saad MN, Moreno J, Crawford C. Hemisection as an alternative treatment for decayed multirooted terminal abutment: a case report. J Can Dent Assoc. 2009;75(5):387-90.