

Case Report**Hemisection: Salvaging the Hopeless- A case report**

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Abstract: In the recent times technology has advanced by great lengths, dental practice has also joined the race for advancement. Today patient comes to dental clinics informed; he knows the dental procedures by names & understands the importance of tooth preservation. Patient no longer wants his tooth to be extracted for any cause. This article presents a case report where hemisection as a treatment option is used in case of extensive decay in molar which otherwise would have gone for extraction.

Keywords: Endodontics; Mandibular molar; Obturation; Periodontal disease; Root caries.

INTRODUCTION

Hemisection is sectioning of multi-rooted tooth into two halves from crown portion till the root.¹ With the advancement in the dentistry & increased demand of patients to maintain their dentition extracting the tooth is not the option. Loss of the posterior teeth is eventful & undesirable often leading to tooth drifting, loss of vertical dimension, loss of masticatory function, loss of arch length, supra eruption of the opposing tooth & loss in supporting alveolar bone.^{2,3} Hemisection of the effected tooth allows the preservation of tooth structure, alveolar bone, vertical dimension & arch length. Hemisection is also a cost effective treatment.

Indications

1. Tooth affected by caries, vertical root fracture, periodontal diseases & iatrogenic root perforations.
2. The tooth morphology should allow for proper surgical access & proper periodontal health.
3. Remainder root can be easily treated endodontically & can be resorted easily.²

Contraindications

1. Poor periodontal health.
2. Poorly shaped/fused roots
3. Patient not willing for the treatment.²

Complications

1. Increased risk of caries
2. Increased stress on the remaining tooth.²

This article presents a case of distally carious tooth that was successfully treated with hemisection which otherwise would have gone for extraction.

CASE REPORT

Fifty years old male patient reported to the department of Conservative Dentistry & Endodontics of Rama dental college, hospital & research centre with complain of pain in his left lower back tooth region. On examination large carious lesion was observed in the distal aspect of the mandibular left second molar (37). The radiograph revealed that lesion extended deep up to subgingiva (Fig 1).



Figure 1: Preoperative radiograph showing mesioangular impaction of 38 with distal portion of 37 with caries.

The mesial root was in good condition with excellent periodontal support. The mandibular left third molar (38) showed mesioangular impaction. Tooth extraction was not an option as patient was not willing to go for an extraction. Hemisection as a treatment option was considered and all the risk involved in the procedure were informed and consent was obtained from the patient. Endodontic treatment of the mesial roots followed by the restoration with composite was done, after this the process of hemisection was done. Access preparation was done, working length taken and cleaning and shaping was done by crown down technique till Wave One Primary. Obturation was done. Post operative

restoration was done using composite (Fig 2&3).



Figure 2: Obturation & coronal restoration of mesial part of tooth- radiograph.



Figure 3: Obturation & coronal restoration of mesial part of tooth- photograph.



Figure 4: Radiograph showing distal root hemisectioned.



Figure 5: Hemisectioned distal root & coronal part of tooth.

Thereafter a tapered fissure bur was used to separate the mesial & distal halves of the tooth from furcation area, next the

distal half of the tooth was extracted (Fig 4&5). Antibiotics and analgesics were prescribed to the patient. Patient was recalled after one week for follow up. After two weeks of follow up crown cementation was done in relation to 37.

DISCUSSION

The hemisection is a useful alternative treatment to extraction to save the multi-rooted teeth by endodontic approach, which includes the root canal treatment of the remaining roots and restoring them with suitable restorative material. It is important to consider the following factors while restoring a hemisected molar:⁴

- Advanced bone loss around one root with an acceptable level of bone around the remaining roots.
- Angulations and position of the tooth in the arch. A molar that is buccally, lingually, mesially or distally tilted cannot be resected.
- Length and curvature of roots.

According to Buhler H, the failure rate of hemisection reported is around 13.1%, which is not much different from that of implants, moreover hemisection is an inexpensive & less time consuming than implants therefore it should always be considered as treatment option before extraction of molars.⁵

In present case after informing the patient about the treatment procedure & taking the written consent, the treatment was started. In this case the caries in the distal root extended deep subgingivally, mesial root was in good condition with excellent periodontal support. Endodontic treatment followed by crown lengthening was not feasible as it would have reduced the overall periodontal prognosis by reducing bone support for both roots. A predictable and good quality of endodontic treatment is of paramount importance and also adequate residual crown structure to provide good resistance and retention for definitive restoration

In present case the endodontic treatment was done for the mesial root followed by composite restoration. The composite

restoration was done on the mesial part of the tooth. After restoration the distal part of the root was carefully resected. The literature on distal root resection is limited as compared to mesial root in mandibular molars because of its anatomical structure.^{6,7} Nevertheless hemisection is a viable option to be considered before the extraction of molars specially in the presence of conditions such as severe vertical bone loss (one root of a multi-rooted tooth), furcation destruction, unfavorable proximity of roots of adjacent teeth, preventing adequate hygiene in maintenance of proximal areas and severe root exposure due to dehiscence.⁸ In the present case, good prognosis was observed with proper occlusion, absence of mobility and healthy periodontal condition up to 6 months of follow-up.

CONCLUSION: In this technological driven era patient is becoming more & more informed about the dental treatment, the latest development in the material system & different treatment options available to them. Patients now understand the importance of preserving teeth and they don't see extraction as a treatment option & are generally against it. Hemisection is successful & conservative alternate treatment over conventional procedure of extraction for endodontically & periodontally compromised tooth.

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