Hemisection Report of Two Cases

Swetha Bollineni, Karunakar P

ABSTRACT

Mandibular first molars are one of the most commonly extracted teeth due to dental caries. This paper reports managing two cases of badly decayed molars with hemisection followed by modified fixed partial denture.

Keywords: Hemisection; Fixed Partial Denture; Molar; Dental Caries

Introduction

Meticulous advances in dentistry provided the patients with an opportunity to retain their functional dentition. Patients desire to preserve their natural teeth made the dentist to think of an alternative to retain their teeth that once used to extract. Hemisection denotes sectioning of mandibular molar into two halves followed by removal or separation of diseased root with its accompanying crown portion. The procedure of hemisection represents a form of conservative management to retain maximum tooth structure as possible. This paper reports managing two cases of badly decayed molars with hemisection followed by modified fixed partial denture.

Case Report 1

A 17 years old female patient reported to the department of conservative dentistry with a chief complaint of decayed tooth associated with pain in the lower right jaw region. On intra oral examination, 46 was found grossly decayed with caries extending to the medial portion of the crown. On radiological examination (Figure 1) confirmed dental caries in relation to 46 with furcation involvement. The extent of decay rendered the tooth non restorable and the patient was explained different treatment options and she for hemisection. Endodontic treatment was performed only for the mesial root canal of and coronal access was sealed with permanent restorative material. Hemisection was performed (Figure 2, 3) under local anesthesia. Sutures placed. After seven days, the sutures were removed. The patient returned after 2 weeks of postsurgical healing. Crown preparation was completed on 46 distal root and 45 and fixed porcelain fused to metal bridge was fabricated (Figure 4).

Case Report 2

A 35 years old female patient reported to the department with a chief complaint of decayed tooth associated with pain in the right back jaw region. On intra oral and radiological examination, 46 was found grossly decayed involving total distal half (Figure 5). Tooth was planned to treat by sectioning it. Endodontic treatment was performed on the distal root canal coronal access was sealed with permanent restorative material. Under local anesthesia hemisection was done (Figure 6, 7) and bone graft placed for socket preservation. Sutures placed. After seven days, the sutures were removed. The patient returned after 2 weeks of postsurgical healing. Crown preparation was done on mesial root of 46, onlay was done on the 47 and onlay supported fixed metal bridge was fabricated (Figure 8).

Discussion

Mandibular first molars are the most commonly extracted teeth due to dental caries. Proper diagnosis, case selection and treatment planning is most important for success and prognosis of the badly decayed lower molars. Buhler stated that hemisection should be considered before every molar extraction, because it provides a good, absolute and biological cost saving alternative with good long term success. A guiding principle should be to try and maintain what is present. Tooth should be treated endodontically first for relieving the patient from the pain and to evaluate the success of endodontic treatment. The access cavity is sealed with permanent restorative material because tooth preparation can invade the pulp chamber and jeopardize control of the coronal seal of the endodontic access opening and cause the contamination of the obturated tooth during the procedure of hemisection.

In this particular cases presented there was good bone support all around the tooth, extraction was not considered. The decision of hemisecting the tooth was made because the decay was extending to only to root in each case. When choosing to perform a hemisection procedure, consideration should be given to the morphology, clinical length and shape of the roots of a multirooted tooth. In the present case the above mentioned indication for case selection in performing hemisection was optimum as the roots were not closely approximated or fused similar to the previous reports in literature.

Clinical prediction of the long term prognosis is important. 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. According to Shin-Young Park, resected molars used as intermediate abutments of a fixed bridge, had a higher survival rate. Various aspects of occlusal function such as location and size of contacts and the steepness of cuspal inclines may have played a significant role in the restorative design.

In the first case three unit bridge was provided to restore occlusal function that involved the adjacent second premolar and retained distal root of mandibular first molar. In the second case bridge was provided by placing an onlay on the second molar. As second molar has bigger occlusal table wound support the small unit bridge and conserve the tooth without a full coverage restoration. Smaller sized prostheses are better and preferable as they accumulate less plaque than bigger.
prosthesis and have better survival rates.6,12 Occlusal contacts were reduced in size and repositioned more favourably. Lateral forces were reduced by making cuspal inclines, less steep and eliminating balancing incline contacts.2,6,11,13

**Conclusion**
Increasing the life of tooth by process of hemisection has become successful treatment option for many dentists. This treatment can produce predictable results as long as proper diagnostic endodontic, surgical, and prosthetic procedures are performed.

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