Division for Conservation- A Case Report on Hemisection

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ABSTRACT:

Background: Modern advances in all phases of dentistry have provided the opportunity for patients to maintain a functional dentition for lifetime. Therapeutic measures performed to ensure retention of teeth vary in complexity. The treatment may involve combining periodontics, endodontic and prosthodontic dentistry so that the teeth are retained in whole or in part.One of such lesions that include interdisciplinary approach is endo-perio lesions. Hemisection is a removal of compromised root and the associated crown portion. It is one of the treatment option for preserving remaining part of molar having sound periodontium.

Case report: A 48 years old female patient reported with the chief complaint of pain and mobility of right mandibular first molar. The patient was examined and subjected to periapical radiograph. After completion of phase I therapy and root canal treatment, distal half of the tooth was resected and after healing fixed bridge was given to restore proper form and function.

Conclusion: Today's concept of conservative, preventive dentistry is dedicated to the preservation of the maximum amount of the supporting structures of the natural dentition in a state of health and function. This case report shows the treatment of a periodontally compromised tooth by multidisciplinary treatment approach, determined to retain at least a part of the tooth rather than extraction of the whole tooth that can be used to restore form and function.

Keywords: Fixed Partial Denture, Furcation Involvement, Hemisection, Root-Canal Treatment.

INTRODUCTION:

A considerable number of maxillary and mandibular molars are lost because of periodontal destruction in the furcation area. Several authors have discussed the problems of management of furcation involvement of molars ranging from one extreme that states that molars with furcation involvement should be extracted, to the opposite view which asserts that many teeth with furcation involvement can be treated successfully and will function well for many years. Hemisection is an important treatment in the field of dentistry which helps in increasing desire to retain natural teeth that can be used as individual unit or can be used as an abutment for

fixed prosthesis which can restore the masticatory function.

CASE REPORT:

A 48 years old female patient reported to the Department of Periodontics and Oral Implantology, MGPGI with the chief complaint of pain and mobility of right mandibular first molar. On examination, the tooth was sensitive to percussion and revealed grade 2 mobility. On probing the area, there was a 10 mm deep periodontal pocket around the distal root of the tooth (figure 1).

Figure 1: pre-operative photograph showing a deep periodontal pocket around distal root of the tooth

On radiographic examination, severe vertical bone loss was evident surrounding the distal root along with furcation involvement (Figure 2).

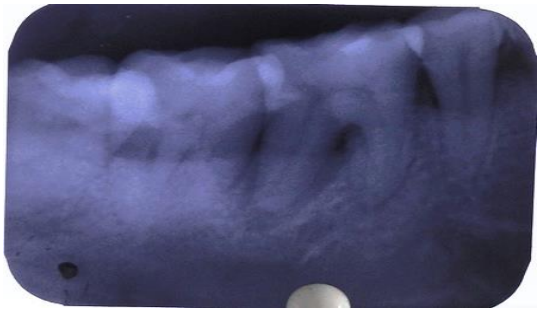

Figure 2: Pre-operative IOPAR showing severe bone loss with grade III furcation involvement

The probing pocket depth around the mesial root was 4 mm. It was decided that the distal root should be hemisected after completion of phase I periodontal therapy and endodontic therapy of the tooth (Figure 3). Two weeks after completion of endodontic therapy, flap surgery was planned. Under local anesthesia, full thickness flap was reflected after giving acrevicular incision from first premolar to second molar. Upon reflection of the flap, the crater like bony defect along the distal root became quite evident. All granulation tissue was removed with Gracey curettes to expose the bone. The vertical cut method was used to resect the crown with distal root (figure 4).

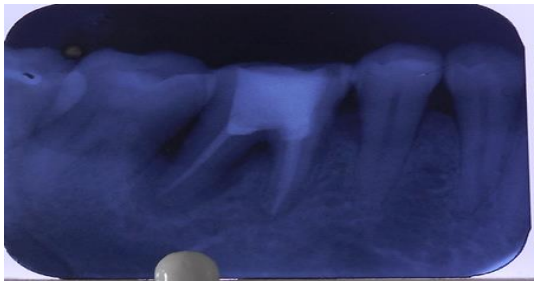

Figure 3: Pre-operative IOPAR after Root Canal Treatment.

Figure 4: A vertical cut made towards the bifurcation area after full thickness flap elevation

A long shank tapered fissure carbide bur was used to make vertical cut toward the bifurcation area. A fine probe was passed through the cut to ensure separation. The distal half was extracted and the socket was irrigated adequately with sterile saline(figure 5 and 6).

Figure 5 & 6: Extracted distal half and irrigated socket

Scaling and root planning of the root surfaces, which became accessible on removal of distal root was done. The extraction site was irrigated and debrided. Then the flap was repositioned and sutured with 3/0 black silk sutures (figure 7).

Figure 7: Repositioned and sutured flap

The occlusal table was minimized to redirect the forces along the long axis of the mesial root. Intra oral periapical radiograph shows the well retained mesial root and extraction socket of the distal root (Figure 8).

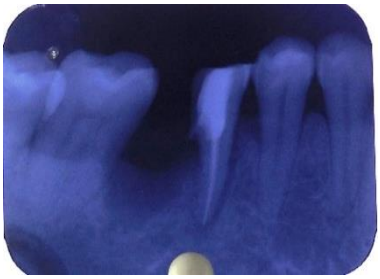

Figure 8: Post - operative IOPAR showing well retained mesial root

After 4 months healing of the tissues (Figure 9), fixed bridge involving retained mesial half and mandibular second molar with sanitary pontic was given (figure 10).

Figure 9: Healing After 4 months

Figure 10: Fixed Bridge

DISCUSSION:

Pulpal and periodontal problems are responsible for more than 50% of tooth mortality today. Diagnosis is often difficult since these diseases have been studied primarily as separate entities. Recently emphasis has been placed on the interrelationship in which one of these diseases may progress to the second tissue, resulting in a distinct and more complex pulpal-periodontal lesion.[1] With recent refinements in endodontics, periodontics and restorative dentistry, hemisection has received acceptance as a conservative and dependable dental treatment and teeth so treated have endured the demands of function.[2] Hemisection is the splitting of a two rooted tooth into two separate portions. This process has been called bicuspidization or separation.[3] Park et al.[4] have suggested molars that are having questionable prognosis can maintain the teeth without detectable bone loss for a long-term period by hemisection but patient should maintain a good oral hygiene. Hemisection can be considered a suitable alternative to extraction and should be discussed with patients, during consideration of treatment options. The results of hemisection are predictable, and success rates are high if certain basic considerations are taken into account.[5] Some investigators compared the prognosis of root-resection therapy to that of implant therapy. Fugazzotto[6] reported 15-year cumulative success rates of 96.8% for root-resected molars and 97.0% for

molar implants. Hemisection is one of the treatment options for preserving remaining part of molar having sound periodontium. The prognosis for hemisection is similar to routine endodontic procedures provided that case selection has been performed correctly and the restoration is of an acceptable design relative to the occlusal and periodontal needs of the patient as it was in this case. This case report demonstrates an alternative treatment to extraction of a whole tooth and salvation of healthy tooth structure in a case where the patient did not wish to have the tooth removed and successful management of hemisected right mandibular first molar with occlusal rehabilitation with fixed partial denture.

CONCLUSION:

Hemisection is still a valid treatment option for molars with furcation involvement, determined to retain and not to remove the natural teeth. The case report shows the treatment of a periodontally compromised tooth by multidisciplinary treatment approach. The success of the hemisected tooth depends on the supporting bone of the remaining tooth part, the restorative treatment plan, and the oral hygiene of the patient. Regular periodontal maintenance and proper occlusal rehabilitation of the hemisected teeth are important precondition for long term survival. Hemisection thus aims to preserve the natural integrity of dentition. Today's concept of conservative, preventive dentistry is dedicated to the preservation of the maximum amount of the supporting structures of the natural dentition in a state of health and function. The techniques of combined multidisciplinary therapy have proven to be a valuable aid in obtaining this objective.

REFERENCES:

1. Hiatt WH. Pulpal Periodontal Disease. J Periodontal 1977;48:598-608.
2. Haueisen H, Heidemann D. Hemisection for treatment of an advanced endodontic-periodontal lesion: a case report. Int Endod J 2002;35:557-72.
3. Ammons WF, Harrington GW. Furcation: Involvement and treatment. Carranza's Clinical Periodontology, 10th edition, 991- 1004.
4. Park J. Hemisection of teeth with questionable prognosis. Report of a case with seven-year results. Journal of the International Academy of Periodontology 2009;11:214-9.
5. Kurtzman GM, Silverstein IH, Shatz PC. Hemisection as an alternative treatment for vertically fractured mandibular molars. Compend Contin Educ Dent 2006;27:126–9.
6. Fugazzotto PA. A comparison of the success of root resected molars and molar position implants in function in a private practice: results of up to 15-plus years. J Periodontal 2001;72:1113-23.

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