HEMISECTION OF MOLAR WITH QUESTIONABLE PROGNOSIS: A CASE REPORT

Prajna Metta, Ina Hendiani
Department of Periodontics, Padjadjaran University, Bandung, Indonesia

ABSTRACT

Introduction: Severe vertical bone loss with mobility and periodontal abscess on molars often treated with extraction of the tooth. Hemisection is an alternative to maintain both tooth and periodontal tissue. Hemisection refers to sectioning of a mandibular molar into two halves followed by removal of the diseased root and its coronal portion, most likely to be performed on mandibular molars with class II or III furcation involvement. Objectives: To emphasize the importance of endodontic and periodontics treatment when dealing with endo-perio lesions and to demonstrate the considerable healing potential of the periodontal aspect. Case: A 55-year-old male patient reported to the Department of Periodontology Padjadjaran University, Bandung, Indonesia, with a chief complaint of tooth mobility in the lower right posterior sextant. On intoral examination, deep pocket depth and abscess in vital mandibular first molar was found. Grade II mobility and grade III furcation involvement was reported. Radiographic examination showed severe vertical bone loss on distal root region of the affected tooth. Case Management: Periodontics initial treatment on all region and endodontic treatment of the mandibular first molar was done. Removal of the distal root followed by bone graft and PRF membrane placement to the affected area. The final restoration was performed using crown and bridge. Conclusion: Endodontic treatments followed by hemisection were beneficial to preserve molars with periodontally questionable prognosis.

Key Words: Hemisection, mandibular molars, furcation involvement, endo-perio lesion
Case Management

Periodontics initial treatment on all region and endodontic treatment of the mandibular first molar was done [Figure 3]. After evaluation of initial therapy, the patient was scheduled for surgery. Under local anesthesia, a sulcular incision on buccal and lingual of 46 and an addition of vertical incision mesial to 46 was done using #15 blade [Figure 4]. A mucoperiosteal flap was raised to expose the bony crest preparatory to the hemisection procedure [Figure 5]. The mesial and distal roots were then sectioned at the level of the furcation [Figure 7]. The distal root was extracted. A finishing diamond bur was used to smoothen the distal area of the mesial root and its coronal portion. The exposed dentin was covered with RM-GIC [Figure 9]. The remaining root was instrumented and debridement procedure was done to eliminate necrotic tissue preparatory to bone grafting procedure. A block of cylindrical alloplastic bone graft was placed into the defect area, filling the entire socket of distal root region [Figure 10]. A PRF membrane was placed covering the bone graft material as a guided tissue regeneration [Figure 11]. The flap was repositioned and secured with anchorage suture and interrupted sutures (non-resorbable silk 5.0 suture material) [Figure 12]. Non-eugenol periodontal dressing was placed over the surgical site for a week [Figure 13]. On recall visit after a week, periodontal dressing was removed, and post-operative maintenance care was continued at regular intervals. A week later, sutures were removed and post-operative healing was satisfactory with minimal discomfort [Figure
Clinical re-evaluation at 6 months revealed an improvement in the clinical parameters, with mobility reduced from Grade II to Grade I. The final restoration was performed using crown and bridge from 46 to 47 [Figure 17a and b].

Figure 4. Sulcular incision on buccal and lingual of 46

Figure 5. A mucoperiosteal flap was raised.

Figure 6. Buccal view of furcation defect on 46

Figure 7. The mesial and distal roots were sectioned at the level of the furcation.
14a and b]. Clinical re-evaluation at 6 months revealed an improvement in the clinical parameters, with mobility reduced from Grade II to Grade I. The final restoration was performed using crown and bridge from 46 to 47 [Figure 17a and b].

Figure 4. Sulcular incision on buccal and lingual of 45

Figure 5. A mucoperiosteal flap was raised.

Figure 6. Buccal view of furcation defect on 46

Figure 7. The mesial and distal roots were sectioned at the level of the furcation.
Figure 8. The hemisection procedure was completed.

Figure 9. The distal root was extracted.

Figure 10. Bone grafting procedure.

Figure 11. A PRF membrane was placed covering the bone graft material as a guided tissue regeneration.
Figure 12. The flap was repositioned and secured with anchorage suture and interrupted sutures.

Figure 13. Non-eugenol periodontal dressing was placed over the surgical site for a week.

Figure 14a and b. 2 weeks follow up
Figure 15a and b. 1 month follow up

Figure 16a and b. 3 months follow up

Figure 17a and b. 6 months follow up and final restoration of crown and bridge was performed on 46 and 47.

Discussion
The hemisection is a useful alternative treatment to extraction to save the multi-rooted teeth by endodontic approach and restoring them with fixed prosthodontic prosthesis to maintain the occlusal balance. Success of hemisection procedures depend on proper case selection and the considerations such as advanced bone loss around one root with
acceptable level of bone around the remaining roots, angulation and position of the tooth in the arch, divergence of the roots, length and curvature of roots, feasibility of endodontics and restorative dentistry in the root/roots to be retained. The literature on distal root resection is limited as compared to mesial root in mandibular molars because of its anatomical structure. Nevertheless, in this case, hemi-section is a viable option to be considered before the extraction because of the conditions such as severe vertical bone loss (one root of a multi-rooted tooth) and furcation destruction.

Conclusion
Hemisection is an alternative, effective, and conservative treatment modality over extraction of periodontally and endodontic affected teeth. The results of hemisection are predictable, and success rates are high if certain basic considerations are taken into account. In this case, hemisection was beneficial to preserve molars with periodontally questionable prognosis.

Acknowledgements
The author heartily acknowledge the contributions of Department of Endodontic, Padjadjaran University, Drg. Yolanda (Resident of Endodontic), to Drg. Ira Komara Sp. Perio (K) (Consultant, Senior Lecturer, Chair, Department of Periodontics, Padjadjaran University, and to fellow colleagues Drg. Snataka Pribadi, Drg. Indra Gunawan, Drg. Ida Bagus Nyoman Dhedy Widyabawa, and Drg. Frita Feliita S. D.

References