



## A NEW RAY OF HOPE - HEMISECTION

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### ABSTRACT

The aim of the present case report is to describe the management of periodontally and endodontically compromised molar. A 50 year old female patient who reported to our private dental clinic with a chief complaint of pain in her lower right back tooth region was diagnosed with perforation defect at furcation area. This perforation defect of molar was restored to ensure a good ability to masticate along with maintenance of good oral hygiene. This management was a conservative step against the option of complete removal of the natural tooth or Implant surgery.

### INTRODUCTION

Root canal usually fails when treatment falls short of acceptable standards. The reason can be due to procedural errors which prevents the control of endodontic infections [1]. Perforations are regarded as serious complications in dental practice [2]. It occurs during root canal therapy or post space preparation or during caries removal. Perforation at furcation level (class II or III) can be managed by hemisection [3-5]. This case report describes the management of perforation defect at furcation area in a 50 year old female patient who reported to our private dental clinic with a chief complaint of pain in her lower right back tooth region.

### CASE DESCRIPTION

A 50-years-old female was reported in our clinic with a chief complain of severe pain and swelling on the lower back right region of jaw since 2 months. On general examination, the female is apparently healthy. There was no significant of medical history. Extra-oral examination revealed a straight profile with competent lips. Pain

aggravates on mastication. Intra-oral clinical examination showed an open prepared cavity with the perforation at pulpal floor near furcation area. The pulp vitality test was negative for the offending tooth. Intra oral perapical radiograph (Figure1) revealed that 46 had a perforation on pulpal floor. It was decided to conserve distal root with root canal therapy and perform hemisection for mesial half. Routine blood investigations were conducted and the patient was given a prophylactic antibiotic coverage. Access opening, biomechanical preparation and obturation of the distal root was completed(Figure 2) followed by a temporary restoration. The surgical procedure (hemisection) was planned under local anaesthesia after 15 days. A long shank carbide bur with water spray was used to section the crown longitudinally till the furcation area in order to separate the tooth into mesial and distal half(Figure 3). Atraumatically the mesial half of 46 was extracted (Figure 4 and 5). Sutures were given and post-operative radiograph was taken (Figure 6). Postoperative instructions were given and the patient was



recalled for removal of sutures after 7 days. After 1 year follow-up, the patient was healthy and evidence of bone

formation was seen in intraoral periapical radiographs of the affected region.

**Fig 1. Pre-operative Intraoral periapical radiograph of 46, 47 region**



**Fig 2. Post-obturation Intraoral periapical radiograph of 46**



**Fig 3. Longitudinal sectioning of tooth 46**



**Fig 4. Atraumatic extraction of mesial half segment of tooth 46**



**Fig 5. Sectioned mesial half segment of tooth 46**



**Fig 6. Internal Sectioned mesial half segment of tooth 46**



## DISCUSSION AND CONCLUSION

Resection procedures have been used successfully to retain the teeth with perforations leading to furcation involvement. Various resection procedures are Root amputation, Hemisection, Radisection and Bicuspidization. Root amputation refers to removal of one or more roots of multirooted tooth while other roots are retained. Hemisection denotes the removal or separation of root with its accompanying crown portion of mandibular molars. Radisection is a newer terminology for removal of roots of maxillary molar. Bicuspidization is the separation of mesial and distal roots of mandibular molar along with its

crown portion, where both segments are then retained individually [4].

In the present case, it was decided to go for hemisection procedure for mesial half and conserve the distal half by endodontic therapy followed by prosthodontic rehabilitation. 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 [5]. 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 [6]. Hemisection of a mandibular molar may be a suitable treatment option when the one root is having poor treatment prognosis and the other root is healthy and remaining portion of tooth can very well act as an abutment [7]. This clinical report illustrates solution to the endo-perio problem created in

tooth 46 by performing hemisection followed by a fixed partial dentures. Although such involvement diminishes the longterm prognosis of the affected tooth, extraction is not always an option. Root resection therapy is one of the several treatment modalities that can be used in such cases which can be considered as conservative treatment against extraction of the whole tooth [8].

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