HEMISECTION: AN OPTION TO TREAT APICALLY FRACTURED & DISLODGED PART OF A MESIAL ROOT OF A MOLAR

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CASE REPORT

A 35-year old married lady was referred to the OPD of Operative Dentistry/Endodontics at Baqai Dental College. She had a complaint of pain in her left lower quadrant since last two weeks. She was also worried about the presence of a small tooth-like, unusual growth in the same quadrant. History revealed that a year ago, she got root canal treatment done in left mandibular first molar tooth # 36 followed by an extra coronal restoration. Her medical history was non contributory.

Extra-oral examination did not show any abnormality. Intra-oral X-ray showed that it was an apically fractured part of the mesial root of the molar lodged in the buccal sulcus. The tooth was hemisected and mesial root was removed along with the dislodged part. A three unit bridge combining the hemisected root and adjacent second premolar was inserted which is successfully in service for more than a year.

KEYWORDS: Hemisection, Dislodge root, Mandibular Molar.

INTRODUCTION

Hemisection refers to sectioning of a mandibular molar into two halves followed by removal of the diseased root and its coronal portion. The retained root is endodontically treated and the furcation area is made self-cleansable by removing the lip of root carefully. Since hemisected teeth fail by root fractures, it is important to restore them adequately by an extra-coronal restoration. It is indicated where one of the root of molar is unsalvageable due to caries, periodontitis or iatrogenic mishaps. It is thus a conservative option with acceptable prognosis. It has other indications as well. In orthodontics management of congenitally missing mandibular second premolar is simplified by hemisectioning the retained deciduous second molar and closing the space in stages. It has been used to facilitate the eruption of impacted second premolar. Similarly primary molar hemisection has been suggested to aid in the management of ectopically erupted permanent first molar. Load bearing capacity of these teeth has also been investigated and with adequate restoration, they have near normal functioning capacity in in-vitro. Published literature has demonstrated an adequate prognosis for hemisected teeth. The presented case report is about hemisection of a mandibular first molar.
Intra-oral periapical radiograph revealed that the tooth #36 was root treated with furcation bone loss and subsequent big radiolucent area under the mesial root. Apical part of the mesial root was missing from its place. Though it was dislodged in the buccal sulcus, it appeared in the X-ray just next to its original intact part. Very careful radiographic examination could confirm that the peculiar structure clinically visible in the buccal sulcus was fractured apical portion of the mesial root of tooth #36. The distal root was firm having sound bone all around it. The status of the RCT was satisfactory (Fig. 2).

The patient was offered two options; either to get her full tooth removed or half of it. She chose the second option. It was therefore decided to go for hemisection. Thorough scaling and polishing were performed before the hemisection. The patient was briefed on strict oral hygiene instructions for future maintenance. Porcelain fused to metal crown was removed with the help of a crown remover. The crown was sectioned at the level of furcation using high speed handpiece and diamond point of an appropriate size. The broken mesial root was extracted under local anesthesia. The dislodged part of the root was removed with a tweezers (Fig. 3). A finishing bur was used to smooth on the margins of the remaining structure (Fig. 4).

Cavit was packed in the occlusal part of distal portion of the hemisected tooth and necessary antibiotics were prescribed. Occlusal adjustment were performed to avoid fracture during the healing period.

At a follow up appointment, one week later, normal healing was noted. Tenderness on percussion had disappeared (Fig. 5).
To let inflammation subside and wound heal completely, restorative work was deferred for one more week. Core was then built using glass ionomer and light curing composite (Fig. 6).

A three unit fixed-fixed bridge was planned using tooth #35 and the built up portion of tooth #36 as abutments. Tooth preparation was performed and impression was obtained with addition cured polyvinylxilosane in stock trays. The impression was sent to a laboratory for the manufacturing of prosthesis. The prosthesis was received from lab after two weeks. A three unit porcelain fused to metal fixed partial denture was inserted and the occlusion was thoroughly checked for any discrepancy (Fig. 8).

At 1- year recall visit, patient had no complaints regarding function and esthetics. Radiographically, the tooth had healthy bone around it having intact lamina dura and uniform periodontal ligament space (Fig. 9).

DISCUSSION

Hemisection was chosen since patient didn't want a complete extraction and replacement by an implant. Mesial root was removed since it was the diseased half. Retention of distal half has various advantages. Placement of a longer post is possible. It is also broader and straighter and accepts the load better. Mesial root has a longitudinal groove which decreases the surface area and makes adequate post placement a challenge. Three unit bridge was provided to restore occlusal function that involved the adjacent second premolar and retained distal root of mandibular first molar. In-vitro studies have proven a near normal return of biting force when such a prosthetic design is chosen. This design alongwith Retention of distal part of the tooth helped in keeping the size of the prosthesis (fixed fixed bridge) small, since the second molar was spared. Smaller sized prostheses are better and preferable as they accumulate less plaque than bigger prosthesis and have better survival rates. Adequate plaque control is one of the biggest determinants in ensuring long term success of this prosthetic design. In our case at 1 year follow up the patient presented with well maintain oral hygiene around the prosthesis. The success of hemisedected and prosthodontically restored teeth also depends on baseline
periodontal status since periodontally compromised hemisected teeth were shown to have more complications. Our patient not only presented initially with acceptable oral hygiene, at one year follow-up the radiograph demonstrated stable bone levels. We thus conclude that when retention of a part of a tooth seems to extend the life of a prosthesis, the patient certainly deserves the option of hemisection or root amputation rather than extraction.

REFERENCES