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HEMISECTION: A RAY OF HOPE FOR HOPELESS TOOTH

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ABSTRACT

The aim of any treatment modality is to preserve the natural, but proper periodontic, prosthetic, and endodontic assessment for appropriate selection of cases is important. Management of the teeth which has extensive decay and periodontally involved is important to avoid further treatment modalities like implants. To conserve the posterior multirooted tooth with single root compromised is challenging and achieved by using operative skills, latest treatment modalities. Tooth hemisection is the procedure of root amputation and preservation of tooth structure alveolar bone loss.

KEYWORDS: Hemisection, Endodontic, Furcation, Root resection.

INTRODUCTION

Throughout the years, management of periodontally involved molars with extensive decay is a challenging and is limited to dental extraction and replacement with implants.[1] 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 restorative dentistry, endodontics and periodontics so that the teeth are retained in whole or in part.[2] The preservation of posterior abutment teeth permits oral rehabilitation with fixed bridges instead of removable prosthesis.[3]

Continued periodontal breakdown may lead to total loss of tooth unless these defects can be repaired or eliminated and health of the tissues restored.[2] Loss of the posterior teeth is eventful and undesirable often leading to teeth drifting, loss of masticatory function and loss of arch length, which requires prevention and maintenance measures.[1] Thus tooth resection procedures are used to preserve as much tooth structure as possible rather than sacrificing the whole tooth.

The term tooth resection denotes the excision and removal of any segment of the tooth or a root with or without its accompanying crown portion. Various resection procedures described are: root amputation, hemisection, radisection and bisection. Hemisection denotes the removal of compromised root and the associated crown portion with the loss of periodontal attachment and is performed to maintain the original tooth structure and attain the fixed prosthesis.[2]

This procedure represents a form of conservative dentistry, aiming to retain as much of the original tooth structure as possible.[4] This resection type of surgical therapy is a definitive treatment because it predictably enables clinicians to better access the remaining tooth structure for periodontal and subsequent prosthetic therapy.[5]

CASE REPORT

A 42 year-old patient reported to the Department of Endodontics and Preventive Dentistry, with a chief complaint of pain in the lower left back tooth region since 15-20 days and swelling since 7 days. Pain was severe and intermittent in nature, which aggravated on mastication and swelling over the buccal side of tooth. On clinical examination there is no any detectable abnormality. On intraoral examination, tooth was tender on percussion in relation to lower left first molar teeth with a deep periodontal pocket on the mesial surface of the first molar. On radiographic examination, there is a root resorption is noticed on distal root of molar tooth and mesial root intact and slight vertical bone loss noticed.

Hemisection of distal root was decided after the completion of endodontic treatment for the mesial root. Post-endodontic restoration was performed with light cure Composite. Hemisection of distal root was done followed by gingival curettage. At 1 month recall visit, healing was uneventful with the absence of mobility. Tooth preparation of the mesial portion of first permanent molar was performed followed by ceramic bridge restoration. Radiographic success observed at 1, 3, and 6 months of recall visit indicated the absence of the periodontal ligament widening and bone formation at an extraction site. Healing of treated tooth was uneventful at recall visits.

Fig.1: Before treatment (Clinical)

Fig.2: Before treatment (Radiograph)

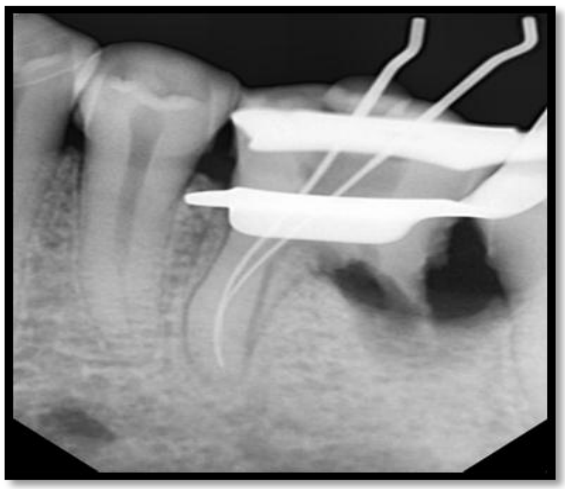

Fig.3: Working length

Fig.4: After Obturation

Fig.5: After obturation and composite

Fig.6: After crown cutting

Fig. 7: After prosthesis placement.

DISCUSSION

For the success of hemisection or any tooth resection procedures some considerations are taken into mind are: Bone loss around one root with acceptable lavel, angulation and position of tooth in arch, divergence of root, root fusion, length and curvature of root and feasibility of treatment.[6,7,8,9]

The literature on distal root resection is limited as compared to mesial root in mandibular molars because of its anatomical structure.[10,11]

Buhler (1988) observed 32% failure rate in hemisection cases attributed to endodontic pathology and root fracture while other authors (0-9%) have shown a greater success in hemisection cases in the long term studies.[12,13,14]

In this case report, good prognosis was observed with proper occlusion, absence of mobility and healthy periodontal condition up to 6 months of follow-up. As the hemisection is a good treatment option for the molar teeth's in young children and adults, which otherwise have to be extracted due to extensive caries or root resorption. Thus, conservative management of extensive carious molar tooth in young patients can not only preserve the tooth but also reduce the financial load, psychological trauma and occlusal dysfunction.

CONCLUSION

Hemisection is an alternative, effective, and conservative treatment modality over conventional procedure like extraction of periodontally and endodontically affected tooth.

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