

Case Report**Surgical Endodontics is not just Apicoectomy: Report of Two Cases**

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**Abstract:** Advances in treatment modalities with time has led to a more conservative approach to preservation of tooth structure for its longer retention in the dental arch as a functionally active unit. Patient also wishes to conserve tooth which has a questionable prognosis. Teeth with fractured root, severe bone loss, endodontically inoperable root can be retained in the oral environment with various treatment modalities. The present article deals with radisectomy or root resection which involves complete removal of one root of a multirooted tooth.

**Keywords:** Multi-rooted tooth; Radisectomy; Root resection.

**INTRODUCTION**

Advancement in dentistry are evolving as a boon for preservation of tooth which has a poor prognosis in order to maintain the teeth in the dental arch for better function and esthetics. Molars are the first permanent teeth to arrive in the dental arch and remain for the longest and act as pillars and bears maximum load in the dental arch. When these are affected by caries or periodontal disease, surgical procedure like radisectomy or root resection helps in preservation of the tooth.<sup>1</sup> Radisectomy is also termed as root resection or root amputation. The term “to section” comes from the latin word *sectus* meaning to cut. Radisectomy refers to cutting off of one root from its associate crown structure in a multi rooted tooth and retaining the other roots. This method conserves as much as tooth structure with minimal damage to the tooth. This article throws light on the procedure of radisectomy to conserve teeth in the dental arch.<sup>2,3</sup>

Indications for radisectomy are Grade III furcation involvement, severe bone loss involving only one root, root resorption and perforation, severe gingival recession involving only one root of a multi-rooted tooth, vertical root fracture of only one root, endodontically inoperable root.<sup>2</sup> Contraindications for root resection or radisectomy are unfavourable crown root ratio, decreased osseous support, fused root, poor root form of remaining roots, poor oral hygiene.<sup>2,4</sup> This article describes two successful cases of radisectomy of the mesiobuccal roots of maxillary first molar.

**CASE REPORT**

**Case 1:** A 41 year old male patient reported to the Department of Conservative Dentistry

and Endodontics of Rama Dental College, Hospital and Research Centre with a chief complaint pain on mastication in the upper left back tooth region since past one week. On examination caries was found in 26. Radiographic examination revealed oblique fracture in the mesiobuccal root of 26 (Fig 1). It was diagnosed as root fracture. Patient was eager on saving the tooth.



**Figure 1:** Pre-operative IOPAR [Case 1]



**Figure 2:** Flap Reflection [Case 1]



**Figure 3:** Root resection [Case 1]

The treatment plan involved root canal therapy followed by radisectomy. Access preparation was done, working length taken

and cleaning and shaping was done by crown down technique till Wave One Primary. Obturation was done. Post operative restoration was done using amalgam. Then the flap was reflected and bone was removed to gain access to the mesiobuccal root (Fig 2). The mesiobuccal root was removed from below the the furcation area of 26.(Fig 3) The flap was repositioned and sutures were given (Fig 4). Patient was recalled after one week for suture removal and follow up.



**Figure 4: Suture Placement [Case 1]**

**Case 2:** A 16 year old female patient reported to the Department of Conservative Dentistry and Endodontics of Rama Dental College, Hospital and Research Centre with a chief complaint of pain in the upper right back teeth region. On examination proximal caries was found in 16. Radiographic examination revealed proximal caries in the mesial side of 16. It was diagnosed as primary endodontic lesion. The treatment plan was root canal therapy. Access preparation was done, working length determined and cleaning and shaping was done by crown down technique till F3 Protaper finishing file. Temporary restoration was given.



**Figure 5: Flap Reflection [Case 2]**

After a week patient complained of persistent pain. On examination pain was present only in the mesiobuccal root. The treatment plan was to salvage the mesiobuccal root by radisectomy. Only the distal and the palatal roots were obturated. Post endodontic restoration was done using

amalgam. A triangular flap was reflected and bone was removed to gain access.(Fig. 5)



**Figure 6: Root Resection [Case 2]**

The mesiobuccal root was then removed from below the furcation area of 16 (Fig. 6). The flap was repositioned and sutures were placed (Fig. 7). Antibiotics and analgesics were prescribed to the patient. Patient was recalled after one week for follow up and suture removal. Post-operative radiograph shows complete removal of mesiobuccal root of 16 (Fig. 8) and the patient was asymptomatic after one week.



**Figure 7: Suture Placement [Case 2]**



**Figure 8: Post-operative IOPAR [Case 2]**

## DISCUSSION

Endodontic surgical procedures are considered to be of prime importance for the treatment and management of teeth and roots with periradicular diseases. Endodontic surgery is not just limited to apical portion but to a greater extent into periradicular areas also. Radisectomy consists of removal of a root portion without removal of the crown portion. Radisectomy can be indicated in these cases of multirouted teeth when an implant is not feasible to extend the

function of the remaining tooth structure or the remaining tooth structure can be retained with a good prognosis.<sup>5</sup> Several studies have evaluated the long term success of root resected teeth. Failure rates of root amputations or radisectomy in molars have been reported to range from 25% to 38%.<sup>6,7</sup>

It is essential to completely remove the root at its juncture, without cutting into the remaining tooth structure. The presence of bifurcation ridges should be anticipated and identified to facilitate removal during final shaping of the resected root surface into the furcation anatomy. Failure to do so can leave ridges of tooth structure which creates niches and cul de sacs and promote plaque and toxin accumulation.<sup>2,8</sup> The long-term prognosis depends on the quality of the performed surgery, the recontouring of the remaining tooth structure as well as the status of periodontal care. Good post-operative oral hygiene is important, especially in the area of root resection.<sup>9</sup> The quality of the root canal treatment in the remaining roots and the final restoration should be considered too. Also the type of case selection is important. The above mentioned cases have shown good prognosis.

**CONCLUSION:** Radisectomy is the treatment modality which will enhance the preservation of natural tooth structure in the field of dentistry. This is a conservative treatment and involves multidisciplinary approach to enhance the success rate. According the above case reports we can say endodontic surgical procedure is not just limited to apicoectomy and is a viable treatment option for preservation of a compromised tooth.

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