MANAGEMENT OF COMPLEX ENDO-PERIO LESION: "BETTER WE THAN I": A CASE REPORT

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ABSTRACT

The increased desire of patients to maintain their dentition has forced clinicians to conserve the teeth in the mouth which were previously planned for extraction. A combined endo perio (endodontic - periodontal) lesion at an advanced stage belongs to such category of teeth. Diagnosis of combined endo- perio lesion can prove to be difficult & frustrating. They are often characterized by extensive loss of periodontal attachment & alveolar bone. Their successful management depends on careful clinical evaluation, accurate diagnosis & a structured treatment planning approach for both the endodontic & periodontic component followed by prosthodontic rehabilitation of tooth. This case report discusses the management of root amputation of the right mandibular first molar with a simple procedure followed by bone grafting and a subsequent insertion of full coverage crowns with rigid connector.

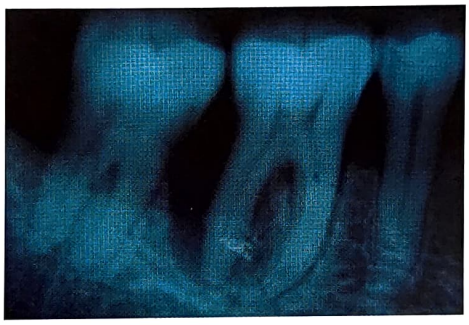

Fig 1

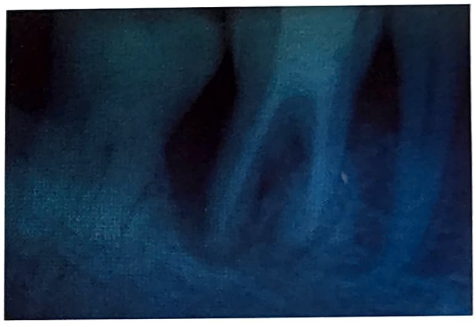

Fig 2

INTRODUCTION

Modern advances in all phases of dentistry have provided the opportunity for patients to maintain a functional dentition for a lifetime.The treatment may involve combining endodontics, periodontics & prosthodontics so that the teeth are retained in whole or in part. Such teeth can be used as independent units of mastication or as abutments in simple fixed bridges. Continued periodontal breakdown may lead to total loss of tooth unless these defects are repaired or eliminated and health of the tissues are restored. Root Amputation is a logical way to eliminate a weak, diseased root to allow the tooth to survive, with a stronger root rather than both which collectively fail.

CASE REPORT

A 54 years old female reported to the Deptt. Of Periodontics, M.M. College Of Dental Sciences & research , Mullana, Ambala with the complaint of pus discharge from right mandibular first molar since 2-3 months. On examination, the tooth was Non vital and revealed grade I mobility. On probing the area, there was a 13 mm deep periodontal pocket around the distal proximal space, along with 13mm & 8 mm around DB & DL root of Ist mandibular molar respectively.

On radiographic examination, severe vertical bone loss was evident surrounding the distal root and partially involving the furcation area. The bony support of mesial root was completely intact. **(Fig. 1)** .

All treatment options were discussed & informed to the patient that Final decision on Regenerative/


Fig 3

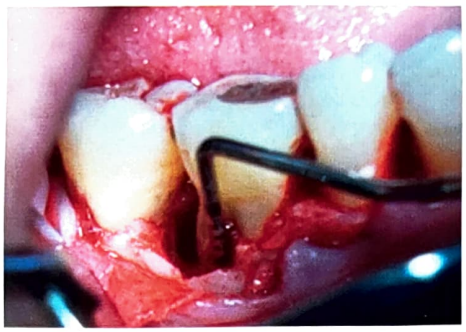
Fig 4


Fig 5


Fig 6


Fig 7

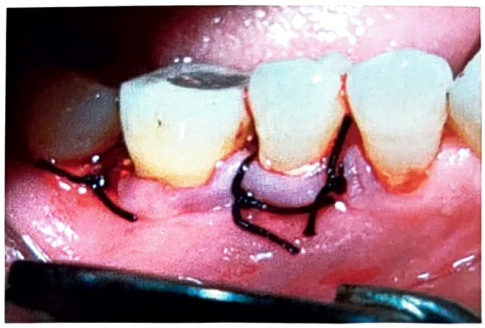
Fig 8

Resective / combination periodontal therapy will be decided and appropriately informed to the patient only at the time of surgical exposure of the diseased site after the completion of endodontic treatment. The patient opted for Endo- Perio treatment modality as the rest of dentition was periodontally healthy. A duly signed informed consent was obtained for the same

Preoperative X-rays were discussed with endodontist .The working length was determined and the canals were biomechanically prepared using step back technique. Phase I therapy was also initiated at the same time and patient was given instructions about oral hygiene maintaince. The canals were obturated with lateral condensation method and the chamber was filled with composite resin to maintain a good seal and allow interproximal area to be properly contoured during surgical procedure. **(Fig. 2)**

Eight weeks post operatively to the completion of endodontic (Root canal treatment) procedure following Surgical steps were carried out:-

Step1. Under 2% Lignocaine local anesthesia, full thickness flap was reflected after giving a crevicular incision from second molar to first premolar. **(Fig 3)**

Step 2. Upon reflection of the flap, the bony defect along the distal proximal root became quite evident as compared to DB &DL. All chronic inflammatory tissue was removed with curret from the distoproximal surface but distobuccal & distolingual surfaces bony plates were intact forming a trench around the distal root of Ist mandibular molar such that apical end of the root was not approachable to mechanical debridement. Thus the decision to remove the distal root & insertion of synthetic resorbable bone graft material was taken & informed to the patient as well. **(Fig 4)**

Step3. A Horizontal cut method was used to resect the distal root. A long shank tapered fissure carbide bur was used to make a horizontal cut toward the bifurcation area. The distal root was resected and removed. **(Fig5, 6)**

The furcation area was trimmed to ensure that no spicules were present to cause further periodontal irritation.

Step 4. The socket was debrided & irrigated adequately with sterile saline to remove bony chips.

Step 5. After the thorough debridement the site was filled with the bone graft to promote regeneration of lost alveolar bone support at amputation site. **(Fig 7)**

Step 6. The flap was then repositioned and sutured with 3/0 black silk sutures.**(Fig 8)**

The patient was followed at 1wk. **(Fig. 9)** & 8 week **(Fig. 10)** interval post operatively, at 12 wk interval radiograph depicts good bone fill and satisfactory periodontal wound heal-

ing was observed. **(Fig. 11)**.

The full coverage crowns with rigid connector were inserted on amputed tooth & tooth distal to it **(Fig 12)**.

DISCUSSION

Success of Root Amputation procedures depends to a large extent on proper case selection. It is important to consider the following factors before deciding to undertake any of the root amputation procedures.

1. Advanced bone loss around one root with acceptable level of bone around the remaining roots.
2. Angulations and position of the tooth in the arch. A molar that is buccally, lingually, mesially or distally titled, can not be amputated.
3. Divergence of the roots - teeth with divergent roots is easier to resect. Closely approximated or fused roots are poor candidates .
4. Length and curvature of roots - long and straight roots are more favorable for root separation and resection than short, conical roots.
5. Feasibility of endodontics and restorative dentistry in the /roots to be retained.
6. Technically feasible conditions to perform surgery that would ensure reasonable prognosis.

Root amputation has been used successfully to retain teeth with furcation involvement, trench ,gutter formation etc. However, few disadvantages are also associated with root amputation, one is pain and anxiety, which usually associated with any surgical procedure. Secondly reshaped amputated root surfaces are more susceptible to caries. Also, failure of endodontic therapy due to any reason will cause failure of the procedure. In addition, when the tooth has lost part of its root support, it will require a restoration to function independently or to serve as an abutment for a splint or bridge. Unfortunately, a restoration can contribute to periodontal destruction, if

Fig 9

Fig 10

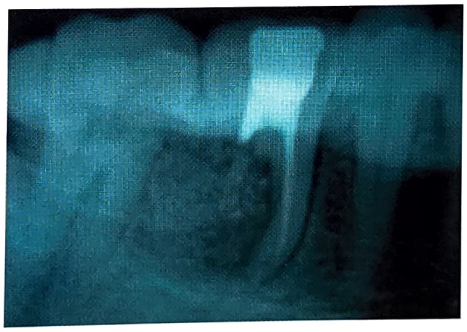

Fig 11

the crown margins are defective or if non occlusal surfaces do not have physiologic form. An improperly shaped occlusal contact area may convert acceptable forces into destructive forces and predispose the tooth to trauma from occlusion and ultimate failure of root amputation.8,9

In the present case report , because of the advance angular bone loss with Trench formation around the distal root of Rt. Mandibular Ist molar , Distal root amputation (Endo-perio treatment) was done followed by insertion of synthetic resorbable bone graft (Bone Medik-DM) in the bony defect.

The literature on distal root resection of mandibular molars is limited. More often, distal root is retained and the mesial root removed10 because mesial root can fracture more easily than distal root as well single root is insufficient to maintained the occlusion of lower molar. Therefore, Full coverage crowns with rigid connector were inserted on amputed tooth i.e Right Mandibular Ist molar as well as on Right Mandibular 2nd molar for long term success.

CONCLUSION

Root amputation can be considered as an alternate treatment options for retaining the natural teeth which previously had a hopeless prognosis. With recent refinements in endodontics, periodontics and prosthetic dentistry, root amputation have received acceptance as a conservative and dependable dental treatment and the teeth so treated have endured the demands of function in the oral cavity. Present case report described an interdisciplinary approach involving endodontist, periodontist and prosthodontist, for a complex endo-perio case with successful outcome.

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