



CONSERVATIVE TREATMENT MODALITIES FOR COMPROMISED TEETH

Dr. Shreya Kohli

Postgraduate, Dept. of Conservative Dentistry & Endodontics, D.A. P.M.R.V. Dental College, Bangalore

Dr. H. Murali Rao*

Professor and Head of Dept., Dept. of Conservative Dentistry & Endodontics, D.A.P.M. R.V. Dental College, Bangalore *Corresponding Author

ABSTRACT

Tooth longevity is dependent on a large extent on the health condition of its pulpal and periodontal tissues. The correlation of endodontic and periodontic radicular lesions has aroused a lot of controversy and confusion. The management of such compromised teeth is challenging often leading to extraction and replacement with prosthesis. However, a better strategy would be a multidisciplinary approach involving restorative, endodontic and periodontal therapy leading to its longevity. This case report describes the conservative management of two different Endo-perio cases.

KEYWORDS : Endodontic, periodontal therapy, Endo-Perio lesion

INTRODUCTION:

Contemporary and present day dentistry focuses more on conservation. Loss of teeth is often undesirable which leads to teeth drifting, loss of masticatory function with loss of arch length, which poses several problems hindering their normal function. Pulpal and periodontal problems constitute more than half of the reasons for tooth mortality.¹

Simring and Goldberg were the first to describe the relationship between periodontal and pulpal disease in 1964.² Since then, the term "Endo-perio lesion" has been referred to describe this type of lesions due to same inflammatory products and common pathways for the spread of bacteria found in both periodontal and pulpal tissues.

The most conventional classification of Endo-perio lesions by Simon et al. is that primary endodontic diseases, primary periodontal diseases and combined disease including primary endodontic disease with secondary periodontal involvement, primary periodontal disease with secondary endodontic involvement and true combined disease.³

Management of compromised teeth is challenging and often leading to extraction and replacement with prosthesis. A better strategy would be a multidisciplinary approach involving restorative, endodontic and periodontal therapy leading to its stronger survival.

The present study describes conservative management of two different Endo-perio cases.

CASE REPORT 1:

A 45 year old female with no underlying medical condition reported to the department of Conservative dentistry and Endodontics with pain in the lower right back tooth region since 10 days. Pain was dull, mild and intermittent in nature. On further examination it was revealed the pain aggravated on mastication.

On examining the tooth intra orally lower right mandibular first molar was tender on percussion with compromised tooth structure on the distal half of the crown. Radiographic examination (Figure 1) revealed radiolucency extending till pulp. It also involved periapical region of both distal and mesial roots and distal bone loss extending upto two third of distal root making its prognosis questionable.

DIAGNOSIS

Primary endodontic disease with secondary periodontal involvement.

TREATMENT PLAN

Hemisection of distal root was decided after the completion of

endodontic treatment of mesial root. The treatment plan was explained to the patient, prognosis against extraction of the tooth discussed and consent obtained.

The access cavity preparation was done and working length determined. Canals were prepared with rotary Protaper files upto F2 using crown down technique with 5.25 % sodium hypochlorite and saline being used for irrigation. The mesial canals were obturated with Gutta Percha and Eugenol based sealer by lateral condensation (Figure 2). In the following appointment the access cavity was restored with silver amalgam to maintain a good coronal seal and allow inter proximal area to be properly contoured during surgical separation.

Under local anaesthesia surgical exposure of flap was done to resect the crown with its distal root. A long shank tapered fissure bur was used to make a vertical cut towards the bifurcation area. After separation was confirmed the distal half was extracted atraumatically (Figure 3). The socket was irrigated adequately following which the flap was approximated with 4.0 black silk suture.

Scaling and root planing of the root surfaces were done. The occlusal table was adjusted to redirect the forces along the long axis of the mesial root.

After a month when healing was found satisfactory a fixed prosthesis was given (Figure 4) which served the purpose of restoring the masticatory functions of the tooth. The prognosis of tooth improved and the need for extraction or any other treatment was eliminated during the 6 months follow up period (Figure 5).

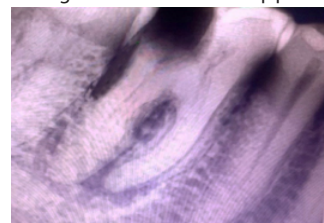


Figure 1: Pre Operative 46



Figure 2: Root Canal Treatment of the Mesial Root.



Figure 3: Hemisection of distal root



Figure 4: Clinical image after fixed prosthesis placement



Figure 5: Follow up after 6 months

**CASE REPORT 2
PRIMARY PERIODONTIC SECONDARY ENDODONTIC LESION**

A 42 year old male patient with no underlying medical condition came to the department with history of pain and bleeding gums in lower right back region since 10 days.

On examination, pain was sharp, shooting and radiating to the lower jaw. Lower right first molar was tender on vertical and lateral percussion.

On probing the tooth (Figure 6) showed a deep pocket of 9-10 mm with respect to the distal aspect of the tooth and a grade 2 furcation at the lingual aspect. No caries was detected with respect to the tooth but it was grade 1 mobile. Pulp testing showed tooth to be non vital.

On radiographic examination widening of PDL space and furcation radiolucency along with distal bone loss extending upto two third of distal root was noted.

The diagnosis of Primary periodontal secondary endodontic lesion was made and treatment initiated.

Scaling and root planing was done and proper oral hygiene instructions given.

The patient was recalled after 1 week when the endodontic treatment was started.

The access cavity preparation was done and working length determined. Canals were prepared with rotary Protaper files upto F2 using crown down technique with 5.25 % sodium hypochlorite and saline being used for irrigation. The canals were obturated with Gutta percha and Eugenol based sealer by lateral condensation (Figure 7) .In the next appointment the access cavity was filled with silver amalgam to maintain a good coronal seal and occlusal table minimised.

After 2 months, periodontal pocket was reassessed. Deep periodontal pocket of 5mm was present in relation to 46 on the distolingual aspect.Periodontal flap surgery was planned for the same under local anesthesia. A full thickness mucoperiosteal flap was raised ,the area thoroughly debrided using hand curettes and ultrasonic scalers. G-Bone alloplastic graft was placed in relation to 46 in furcal area (Figure 8) .Simple interrupted braided black silk sutures were placed and periodontal dressing applied . Post-operative medications and instructions were given and patient was recalled after 7 days for suture removal.

The patient was recalled after one month for re-evaluation. Significant improvement in oral hygiene with absence of bleeding on probing w.r.t 46 was observed. Resolution of inflammation with reduction in probing pocket depth was also seen. Evaluation after 6 months (Figure 9) showed significant bone fill in the furcation area radiographically and normal probing depth of 2mm as well



Figure 6- Pre operative view showing angular bone defect



Figure 7: Post endodontic treatment



Figure 8: Reflection of flap and placement of bone graft



Figure 9: Six months follow up

DISCUSSION

Pulp and periodontium have embryonic, anatomic and functional interrelationship. Simultaneous existence of pulpal problems and inflammatory periodontal diseases i.e. Endo perio lesion can pose several complications for the dentist. Their diagnosis is often challenging because these diseases have been primarily studied individually and may have common clinical characteristics of other disease. Therefore, a correct diagnosis and treatment plan is important to produce optimal result.

The vast majority of pulpal and periodontal diseases are caused by bacterial infection. Cross-infection between root canal and the periodontal ligament can occur via the physiological anatomic (apical foramen, lateral and accessory canals, dentinal tubules and palato-gingival grooves) and non-physiological pathways (iatrogenic root canal perforations and root fractures)⁴. Once the pulp is infected, it elicits an inflammatory response of periodontal ligament. However, the effect of periodontal inflammation on the pulp still remains controversial².

Therefore, treatment of Endo-perio lesion requires both endodontic and periodontal regenerative treatment. The treatment strategy must be to first focus on endodontic therapy i.e. thorough debridement and disinfection of the root canal system. The second phase includes a period of observation, where healing resulting from endodontic treatment is observed. Periodontal surgery follows next, the goal of which is to facilitate the regeneration of hard and soft tissue along with the formation of new attachment apparatus.⁵

In the first case, unrestorability of the crown structure and bone loss w.r.t. distal root led to its poor prognosis. The mesial side on the other hand had adequate support so hemisectioning of the distal root over extraction was decided after its endodontic treatment.

The hemisection is a useful and conservative treatment option compared to extraction. This involves saving the tooth with root canal treatment after which the affected root removed and tooth restored with a suitable prosthesis to maintain the occlusal balance.

In the second case endodontic treatment was done and tooth kept under observation. Since periodontal healing was not adequate the option of periodontal surgery was considered. This sequence allows sufficient time for initial tissue healing and better judgement for further plan of action. Reduced probing depth can usually be expected within couple of weeks while bone regeneration may require several months before it can be detected radiographically. Thus, periodontal therapy, including deep scaling with and without periodontal surgery, should be postponed until the results of endodontic treatment can be properly assessed.⁵

In both the cases, good prognosis was observed with proper occlusion, absence of mobility, absence of symptoms and healthy periodontal condition upto six months of follow up. Thus, conservative management of compromised teeth can not only preserve it but also proves to be economical, less traumatic and can avoid occlusal dysfunction.

CONCLUSION

The simultaneous existence of endodontium and periodontium tissue destruction can be complicating but a proper diagnosis with meticulous treatment strategy can improve its long term prognosis.

REFERENCES

1. Aksel H, Serper A. A case series associated with different kinds of endo-perio lesions. *Journal of clinical and experimental dentistry*. 2014; 6, 1(91)
2. M Simring, M Goldberg. The pulpal pocket approach: retrograde periodontitis. *J Periodontol*. 1964;35:22
3. Simon JH, Glick DH, Frank AL. The relationship of endodontic- periodontic lesions. *J Periodontol*. 1972; 43:202-8
4. Shenoy N, Shenoy A. Endo-perio lesions: Diagnosis and clinical considerations. *Indian Journal of Dental Research*. 2010; 21(4):579
5. Bonaccorso A, Tripi TR. Endo-perio lesion: Diagnosis, prognosis and decision-making. *Endodontic Practice Today*. 2014; 8(2).