

Molar with Grade II Furcation Involvement Treated Endodontically and With Alendronate Gel - A Case Report

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Abstract

Treatment of the furcation involvement in multi rooted teeth with attachment loss and bone loss is one of the clinical situations that create difficulty to periodontist. Furcation area is a narrow space between roots, where instrumentation is difficult. Extent of inflammation determines the various therapeutic approaches used in the treatment of furcation involvement. This is a case report on glickman's grade II furcation involvement treated by periodontal therapy along with local drug delivery of 1% alendronate gel as endodontic therapy alone did not result in resolution of abscess. It is an endo-perio lesion where involvement of the accessory canals in the furcation area limits the success of endodontic treatment. Infection was resolved after Re-evaluation of the patient after 3 months and soft tissue was healed completely.

Keywords: Furcation, alendronate, endo-perio lesion, local drug

Introduction

Furcation involvement is The involvement of bifurcation or trifurcation in multi rooted teeth by periodontal

disease. Treatment of furcation involvement in molars remains a challenge to clinical practice to some extent. The degree of success in the management of furcation involvement is highly variable. The treatment is aimed at removal of local factors. Mainly scaling and root planing is done in periodontal therapy¹. Scaling and root planing, use of local drug delivery of 1% alendronate gel along with maintenance therapy resolve the inflammation². Trauma from occlusion, endo-perio lesions, fractured roots involving furcation, anatomical factors, and extension of periodontal inflammation into the furcation area are some of the causes of furcation involvement³. Furcation involvement also occurs by the spread of pulpal infection through the accessory canals⁴. Furcation involvement in this case is due to dental caries extending to periodontal ligament through an accessory canal and the caries has progressed to periodontal abscess. As reported by Wasserman and Hirschfeld, single rooted teeth that is about 4.9% of tooth mortality whereas multi rooted teeth has 31.4 % after mean maintenance of 22 years⁵. The treatment of furcation-

involvement in molars has shown varying degrees of success. The maintenance glickman's grade II furcation requires scaling and root planning, odontoplasty for correction of anatomical factors like enamel pearls and minimal osseous recontouring⁶. Depending on the etiological factors and extent of inflammation various treatment modalities are used in management of furcation involvement. This paper aims to present a case report that involves treatment of isolated furcation-involvement which it is treated with 1% alendronate gel as endodontic therapy alone did not result in resolution of abscess.

Case Report

A 22-year old female patient reported to the Department of Periodontics, Government Dental College & Research Institute, Bengaluru with a complaint of periodontal abscess with pus discharge in relation to right lower first molar. Patient underwent root canal therapy as it was infected by dental caries. After 3 months following endodontic therapy patient returned with a complaint of pain, evaluation was done. The tooth revealed a deep periodontal pocket measuring 8 mm on the buccal aspect of 46 with no mobility and recession. Periodontal examination showed a glickman's grade II furcation involvement in relation to 46 (FDI system). There was no other periodontal pathology in the remaining dentition as well. Radiographically, the Intra Oral Periapical Radiograph of the tooth with abscess showed some amount of bone loss. The bone loss in the furcation area is probably due to extension of carious lesion through the lateral canals. During the first visit the abscess was drained, scaling and root planing was done and antibiotics and analgesics were given. Once the abscess resolved, 1% alendronate gel was delivered into the furcation area. Re-evaluation of the patient after 3 months revealed satisfactory resolution of the infection and

complete healing of the soft tissue. Postoperative radiograph was taken after 12 months.



Pre-operative IOPA.



Post-operative IOPA and photograph after 12 months.

Discussion

The dental caries leads to the necrosis of pulp. The infection from necrosed pulp causes bone loss in furcation area by extending through the lateral canals⁷. Retrograde periodontitis can result from Long-standing periapical lesion which can get secondarily complicated⁸. Pradeep et al have used the local delivery of 1% alendronate gel as an adjunct to scaling and root planning. The alendronate belongs to a class of drug called bisphosphonates and inhibits osteoclast mediated bone resorption and it was proposed to have osteogenic properties. Its use in intrabony defects resulted in significant probing depth reduction, clinical attachment gain and improved bone fill². In our case report, an endodontically treated tooth with glickman's grade II furcation involvement which was treated by 1% Alenrdonate gel gave a satisfactory result. Other treatment modalities that have been used successfully are; bone grafts are used for regeneration of bone in the furcation area⁹, root resection and hemisection procedures. Root resection is used to eliminate the defect and to create access to the inter-radicular area¹⁰.

The main cause for the abscess in our case is the presence of accessory canal in the root trunk which lead to periodontal pathology and endodontic treatment alone will not be sufficient for such cases. In this case, endodontic therapy should be followed by periodontal therapy. The healing of an endodontic lesion is highly predictable. We have used 1% alendronate gel as a local drug delivery along with scaling and root planing, which has resulted in regeneration of lost alveolar bone, improved clinical

attachment level and reduced probing depth. Therefore, it is very essential that the periodontal pathology should also be treated to get better and desired therapeutic outcome and alendronate will surely provide a new direction in management of bone defects.

Conclusion

In an endo-perio lesion, use of 1% alendronate gel as an adjunct to scaling and root planing significantly improves the clinical outcome and gives better results than scaling and root planing alone. We believe, 1% Alendronate gel can successfully be used in management of furcation defects along with scaling and root planing.

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