

“Role of interdisciplinary approach in the treatment of Periodontally compromised teeth: A Case report with one year follow up”

Dr. Nishi Tanwar¹ M.D.S, Dr. Satish Chandra Narula² M.D.S,
Dr. Rekha Sharma³ M.D.S, Dr. Davender Kumar⁴ M.D.S

¹Assistant Professor- Department of periodontology, Post Graduate Institute of Dental sciences, Rohtak, Haryana, India

²Senior Professor and Head- Department of periodontology, Post Graduate Institute of Dental sciences, Rohtak, Haryana, India

³Senior Professor and Head- Department of Orthodontics, Post Graduate Institute of Dental sciences, Rohtak, Haryana, India

⁴Assistant Professor- Department of Orthodontics, Post Graduate Institute of Dental sciences, Rohtak, Haryana, India

ABSTRACT

Periodontal diseases are infections caused by microorganisms that colonize the tooth surface at or below the gingival margin. Chronic periodontitis is an infectious disease resulting in inflammation within the supporting tissues of the teeth, progressive attachment loss and bone loss. It is generally considered to be a slowly progressing disease. Tooth related anomalies act as a predisposing factor for the progression of the periodontitis by providing a conducive environment for plaque accumulation. This case report describes and explains the treatment of a 20-year-old female patient suffering from chronic periodontitis, with endo-perio lesion in maxillary first molar and palatogingival groove in maxillary lateral incisor. The treatment was done with an Interdisciplinary (periodontic, endodontic, restorative) approach. Periodontal therapy included non-surgical (Phase-I therapy) and surgical phase (Modified flap procedure with distal wedge procedure). Endodontic and Restorative treatment was done simultaneously. Hence a healthy and stable periodontium with successful functional final results was achieved.

Keywords: Chronic Periodontitis; Gingiva; Surgical Flap.

INTRODUCTION

The ultimate utilization of the expertise and skills in various dental disciplines is called interdisciplinary dentofacial therapy. The prefix “inter” signifies the working between the disciplines, instead of disciplines acting as separate entities. Its hallmark is combination of regimental diagnostic treatment planning and therapeutic procedures with extensive communication between the team members.

Chronic periodontitis is an infectious disease resulting in inflammation within the supporting tissues of the teeth, progressive attachment loss and bone loss. This definition outlines the major clinical and etiological characteristics of the disease i.e microbial plaque accumulation, periodontal inflammation, loss of attachment and alveolar bone¹. It is generally considered to be a slowly progressing disease. Tooth related anomalies act as a predisposing factor for the progression of the periodontitis by providing a conducive environment for plaque accumulation.

Palatogingival groove or radicular lingual groove (RLG) is a developmental anomaly that occurs as developmental infoldings of the inner enamel epithelium and Hertwig's epithelial root sheath (HERS), involving primarily maxillary lateral incisors². Palatogingival grooves, found primarily in maxillary incisors, are observed in 8.5% of individuals and are associated with increase plaque accumulation, clinical attachment and bone loss¹. Goon et al. suggested a classification, which represents two types of RLGs, simple and complex³. Simple RLGs do not have communication with the pulp and terminate at the cemento-enamel junction. The complex RLGs have direct communication with the pulp and extend to various lengths along the root. In rare cases, the most complex forms occur as deeply invaginated defects that separate as an accessory root from the main root trunk^{4,5}.

The pulp inflammation or necrosis may lead to an inflammatory response in the periodontal ligament at the apical foramen or at the relationship between pulp of the tooth and surrounding periodontium was first described in 1964⁶, and

since then the term “ENDO-PERIO LESION” has been used to describe lesions due to inflammatory products found in varying degrees in both the periodontium and the pulpal tissue. The interrelationship of these structures influences each other during health, function and disease. The pain associated with endodontic lesion restricts chewing in few cases resulting in inflammatory gingival enlargement in that region.

The present case report deals with the management of a case with endodontic lesion, palatogingival groove and inflammatory gingival enlargement.

CASE REPORT

A 20-year-old otherwise, systemically healthy, non smoking female came in the department of Oral Medicine and Diagnosis with the chief complaint of mal-aligned front teeth. On evaluation patient was referred to department of periodontics for the treatment of periodontitis prior to orthodontic treatment.

CLINICAL EXAMINATION

Clinically deep pockets of about 5-7 mm in right maxillary and mandibular arch were present. Maxillary 1st molar had 9mm pocket palatally and was cariously decayed with grade III mobility. Inflammatory gingival enlargement was present in first and fourth quadarant. A pocket depth of 7mm palatally was measured in maxillary right lateral incisor, on exploring it was concluded that there was present a palatogingival groove. (Figure 1-4)



Figure 1



Figure 2



Figure 3



Figure 4

RADIOGRAPHIC EXAMINATION

Radiographically there was present generalised horizontal bone loss. Periapical radiolucency was seen in association with maxillary 1st molar.

Vitality Test

Electric pulp test revealed maxillary right first molar tooth to be non-vital.

DIAGNOSIS

On the basis of clinical, radiographic and vitality test, the case was diagnosed as Class-I malocclusion (palatally displaced canine) with generalized chronic periodontitis associated with inflammatory gingival enlargement and primarily endodontic lesion in maxillary right first molar.

MANAGEMENT

Sequential approach for the treatment was followed. Phase-I therapy comprising of scaling and root planing was performed using ultrasonic and hand instruments. Patient was referred to the department of endodontics where root canal treatment was started. Patient was instructed on home care measures to control plaque.

At 1 month re-evaluation, clinical parameters revealed residual pocket depth ranging from 7 mm (palatally) in maxillary right first molar and 6mm (palatally) residual pocket depth in maxillary lateral incisor (Figure-5).



Figure-5 (2 weeks after phase-1 therapy)

Thus, it was decided to treat residual pockets surgically. Modified flap with distomolar surgery was performed. Distomolar surgery was performed in relation to maxillary right second molar, restoration of simple palatogingival groove with Glass Ionomer Cement was done. Antibiotics i.e combination of ciprofloxacin and metronidazole was prescribed to the patient for five days. One year follow up revealed stable periodontium. (Figure 6,7).

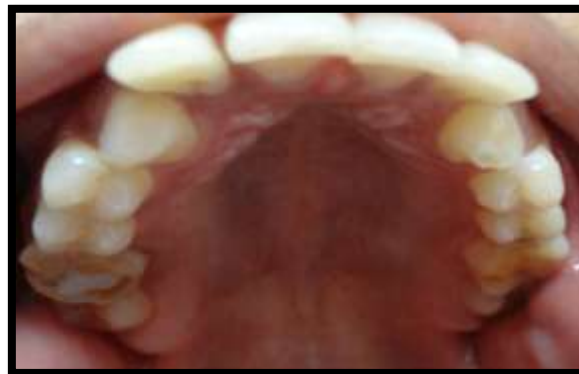


Figure-6 (1 year follow up)

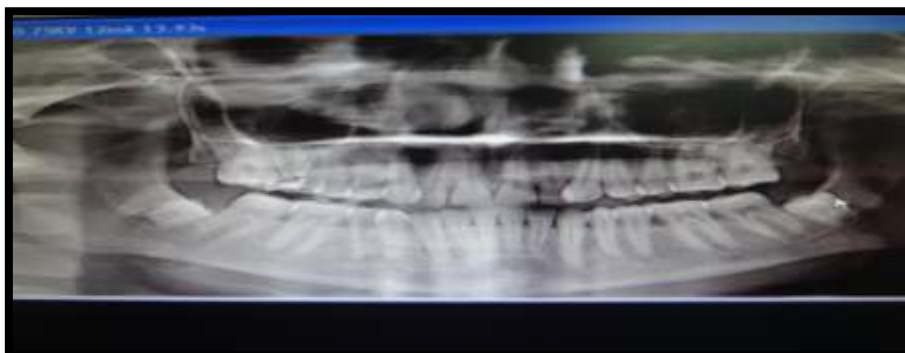


Figure-7 (1 year follow up)

DISCUSSION

Arresting the progression of periodontitis along with reconstruction of the lost attachment apparatus is a challenging issue. With the slow progression of disease, the plaque retentive factors like palatogingival groove may complicate the prognosis of the associated tooth so should be carefully diagnosed. In the present case patient came for orthodontic treatment and was not aware of the ongoing chronic periodontitis and endodontic lesion. After confirming the diagnosis, sequential treatment planning included periodontal therapy along with endodontic treatment and later on orthodontic treatment was performed to the patient.

An acute exacerbation of a chronic apical lesion on a tooth with a necrotic pulp may drain coronally through the periodontal ligament into the gingival sulcus. This condition may clinically mimic the presence of a periodontal abscess. However, it would be a sinus tract originating from the pulp that opens into the periodontal ligament. Similar picture was present in this case. A narrow probing defect combined with a nonvital pulpal response and periapical radiolucency indicated the lesion to be primarily endodontic in origin in maxillary right first molar. Therefore root canal treatment was started to resolve periapical inflammation which was responsible for the grade-III mobility of maxillary right first molar. As the degree of inflammation becomes more extensive, a greater amount of destruction of periodontal tissues would have occurred. Therefore correct diagnosis with appropriate treatment should be started to improve the prognosis of tooth.

Restricted chewing from the right side due to acute pain resulted in inflammatory gingival enlargement in this patient. Chronic inflammatory gingival enlargements are soft and discolored and are caused principally by edema and cellular infiltration. When chronic gingival enlargements include a significant fibrotic component that does not undergo shrinkage after scaling and root planning, surgical removal is the treatment of choice.¹ Modified flap with distal molar surgery was planned to treat residual pockets and the gingival enlargement. Initial reverse bevel incision followed by thinning of the enlarged tissue was performed. After flap elevation, enlarged portion of the gingival tissue was removed. Pocket on the distal surface of the terminal tooth with redundant fibrous tissue was treated by giving two parallel incisions, beginning at the distal portion of the tooth extending to the mucogingival junction distal to the tuberosity. The tissue between the two incision was removed and the flap were thinned^{1,8}.

Palatogingival groove or radicular lingual groove (RLG) is a developmental anomaly that occurs as developmental infoldings of the inner enamel epithelium and Hertwig's epithelial root sheath (HERS), involving primarily maxillary lateral incisors². Radiographic and clinical evaluation concluded it to be a simple radicolingual groove. After raising the periodontal flap, the radicular lingual groove was sealed with glass-ionomer cement.

Three month follow up revealed stable periodontium with no residual pocket and there was no pathological mobility left in right maxillary first molar. Patient was referred to orthodontic department for the correction of class-I malocclusion with palatally displaced canine. One year follow up revealed a stable periodontium (Figure 6,7).

CONCLUSION

Careful history taking and clinical examination is always beneficial to reach at accurate diagnosis. Correct diagnosis must be made to expect favourable treatment outcome. Interdisciplinary approach is the correct pathway to proceed for management of such cases.

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