

Management of perio-endo lesion associated with palato-gingival groove: A case report

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Abstract :

Palatogingival groove is a developmental anomaly, which initiates on the enamel and can extend to a significant distance on the root surface, providing a plaque retentive area that is difficult to instrument. Recognition of such a defect is critical and important, especially because of its diagnostic complexity and its further consequences. This report describes a case of palatogingival groove in a maxillary right lateral incisor with periodontal complications. The management included a combination of endodontic therapy and periodontal regenerative techniques.

Keywords: Palatogingival groove, Maxillary lateral incisor, Pulpal necrosis, Periodontal regeneration.

Introduction :

Palato-gingival groove or Radicular Lingual Groove is a developmental anomaly in which an infolding of the inner enamel epithelium and Hertwig's epithelial root sheath create a groove that passes from the cingulum of maxillary incisors apically onto the root¹. As the name implies this malformation is actually a groove which starts near the cingulum of the tooth and runs towards the cemento-enamel junction in an apical direction at various depths along the root surface². In 1958, Oehlers described for the first time a radicular invagination of an upper lateral incisor in a Chinese female³.

Radicular lingual grooves can create periodontal and pulpal pathology. This groove creates an area where plaque accumulation can be difficult if not impossible to control using oral hygiene measures. Withers et al⁴ in 1981 observed that palatogingival grooves are found on 2.3% of maxillary incisors (4.4% maxillary laterals and 0.28% of maxillary centrals).

Clinically these grooves may be symptomatic or asymptomatic. This case report describes the management of a maxillary lateral incisor with deep palatogingival groove using a combination of endodontic therapy and periodontal regenerative techniques.

Case Report :

An apparently healthy 23-year-old male patient reported with the chief complaint of pain in right upper incisor teeth region since 6 months. There was occasional bleeding from the affected teeth while brushing. There was no history of trauma, caries, nor was there any discoloration of the tooth. Examination of the maxillary incisors revealed the presence of palatogingival groove on distopalatal aspect of right maxillary lateral incisor. On probing, 11mm deep pocket was present on the palatal aspect of affected tooth, with no mobility. The pocket was present only along the groove. Radiographic examination after placement of guttapercha point was carried out to delineate course and extent of the groove. Guttapercha point extended till the apical third of the root and the

associated periapical radiolucency (Fig - 1). The tooth was non-vital on pulp testing. The diagnosis of combined endodontic-periodontal lesion associated with palate groove was made based on clinical and radiographic findings.

In the initial phase of the therapy, thorough scaling and root planing were carried out followed by root canal treatment. After anesthetizing with 2% lidocaine hydrochloride with 1:200000 adrenaline, flap reflection and debridement allowed the complete visualization of the groove. The groove extended up to 10 mm on the root surface from cingulum. Also a deep intrabony defect was observed on the palatal aspect of the right maxillary lateral incisor. Root planning was performed and odontoplasty was carried out with a high-speed diamond bur to eliminate the palatogingival groove completely (Fig - 2). The bony defect was filled with a hydroxyapatite graft material, followed by placement of a collagen resorbable membrane (Fig - 2). Flaps were approximated with the interrupted sutures of 3-0 black silk and periodontal dressing Coe-pak, was placed. The patient was prescribed with suitable antibiotics and analgesics for 5 days and mouthwash containing 0.2% chlorhexidine gluconate twice a day for two weeks.

Result :

At 1-year recall appointment, complete elimination of the groove, reduction in probing depth to 1 mm was noted in the treated area. Radiograph showed resolution of the periapical radiolucency (Fig - 3).

Discussion :

The presence of a morphological defect called a palatogingival groove is considered to be an important contributing factor to the development of localized chronic periodontitis, for it favors the accumulation and proliferation of bacterial plaque deep into the periodontium. This anomaly affects maxillary incisors, especially lateral incisors. Diagnosis of a palatogingival groove is not always easy because the defect may manifest itself with symptoms of true periodontal disease or it may be expressed as a true endodontic lesion, or it may appear as a combined lesion.

The epithelial attachment may be breached due to the accumulation of bacterial plaque and calculus⁵ on the irregular external surface of the groove resulting in onset and progression of periodontal disease. As a result of this breach in the epithelial attachment, the progression of bacterial products through dentinal tubules could secondarily compromise the pulp tissue, causing a primary periodontic /

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secondary endodontic lesion⁶.

If the tooth with palatogingival groove has an involvement of pulp either by direct pulpal extension of the groove or apical extension of the groove till apical foramen then endodontic treatment of teeth has to be completed first and then periodontal treatment has to be carried out.

The final diagnosis is greatly aided by detection of a notch in lingual surface of the crown. In present case, exploration of the lingual fossa revealed a funnel shaped defect obscured by plaque and calculus. Periodontal examination revealed a deep pocket running along the groove. The pulp was non vital. Hence, pulpal necrosis was first managed by endodontic therapy. The vertical bone loss due to periodontal lesion can be treated using bone graft materials as explained by Ballal NV et al⁷ and a resorbable membrane can also be used for guided tissue regeneration as used by Anderegg CR et al⁸. In present case there was bone loss around right maxillary lateral incisor only which was treated by hydroxyapatite bone graft and resorbable collagen membrane.

Conclusion :

Deep radicular grooves can predispose to pulp necrosis and establishment of combined endodontic periodontal problems.

- Evaluation of clinical signs and appropriate diagnostic tests are of paramount importance in order to prevent deterioration of attachment apparatus.
- Combined endodontic advanced periodontal regeneration treatment modalities can help us to salvage the problems associated with this developmental anomaly.

Note : For figures - see colour plate 2 - Section B

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