CONSERVATION OF TOOTH BY TREATING DEEP PALATOGINGIVAL GROOVE – A CASE REPORT

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Abstract

Palatogingival groove is a developmental anomaly that commonly effects palatal surfaces of maxillary lateral incisors. It's diagnosis is usually missed in a routine examination. It acts as a bacterial port that predisposes pocket formation, concomitant bone loss and pulpal involvement and therefore encouraging the formation of endodontic-periodontal lesions. They are uncommon anomaly but if present may take part in the pathogenesis of periodontal and endodontic lesions. In this case, the patient presented with deep probing of the groove. The tooth was RCT treated with peri-apical bone loss. The groove was sealed and guided tissue regeneration was done using amniotic membrane.

Keywords – palatogingival groove, radicular groove, bone loss, guided tissue regeneration, amniotic membrane

Introduction

Anomalies that affect the external and internal morphology may many times become the reason for complicated pathological conditions that usually involves the periodontal and pulpal tissues and act problematic to the clinician for diagnosis and clinical management. One such anatomical anomaly is a developmental groove.[1] It is called as the palatogingival groove or radicular groove. According to the American Academy of Periodontology International Workshop for Classification held during the year 1999, the developmental and acquired deformities and conditions were clubbed as an entity that can escort to periodontal destruction. [2] Lee et al gave the term palatogingival groove that is a developmental anatomic aberration commonly affecting external and internal morphology of the tooth.[3,4]

Palatogingival groove or radicular lingual groove (RLG) is a developmental anomaly where in an infolding of the Hertwig's

epithelial root sheath and the inner enamel epithelium design a groove which passes from the cingulum of maxillary incisors apically onto the root. RLGs can cause pulpal and periodontal pathology. Analogous morphological features consist of patient self-care and favour accumulation of plaque, calculus and food debris. These then facilitate growth and afterwards furnish anaerobic condition for bacterial selection and proliferation.[5]

The prognosis of teeth that are affected by this groove depends upon the depth and extension of it. Odontoplasty can treat shallow grooves in coexistence with periodontal treatment. But if the groove is in advanced stage, its treatment mostly is doomed to failure either because of pulpal or periodontal breakdown.[1]

A case is presented of a maxillary lateral incisor with a deep palatoradicular groove extending up to the root apex with severe periodontal destruction. Despite an apparently poor prognosis, the tooth was successfully managed by endodontic and surgical periodontal therapy.

Case Report

A 26-year-old female reported to the department with tenderness wrt 22. The tooth was rct treated. On clinical examination, a probing depth of 10 mm was seen (Figure 1). On pre op radiological examination, a radiolucency surrounding 22 was seen (Figure 2).

Figure 1 Pre-op probing depth

Figure 2 Pre-op X-RAY

After administration of local anaesthesia, a full thickness flap was raised (Figure 3). On reflection of the flap, the palatogingival groove was appreciated, while buccally, after reflection and debridement, bone loss was seen.

Figure 3(a) Full thickness flap reflected

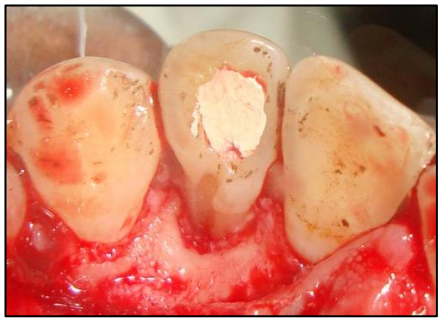

Figure 3(b) Palatogingival groove

Figure 3 (c) Periapical bone loss

The groove was enlarged and sealed using glass ionomer cement (Figure 4). After the groove was restored, the defect in the bone was curetted, an autogenous graft was placed and guided tissue regeneration was done using amniotic membrane (Figure 5). After placement of the membrane, flab was sutured using 3-0 silk sutures (Figure 6) and periodontal pack was placed at the site. A 3 month and 6-month post of radiographic evaluation (Figure 7) revealed successful osseous regeneration.

Figure 4 Groove sealed

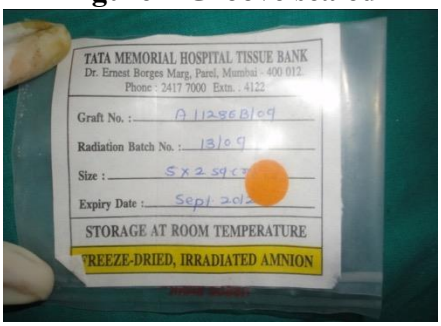

Figure 5(a) Amniotic membrane

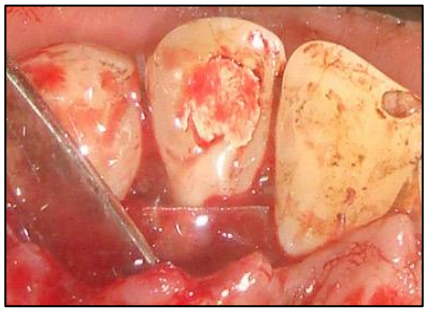

Figure 5(b) Placement of Amniotic membrane

Figure 6 Flap sutured

Figure 7(b) 3-month Postoperative view

Figure 7(b) 6-month Postoperative view

Discussion

The presence of a morphological defect known as palatogingival groove is contemplated to be an chief contributing factor for the development of localized chronic periodontitis, for it advocates the accumulation and proliferation of bacterial plaque deep into the periodontium.[2] Diagnosing palatogingival grooves as the initiator of pathology is routinely difficult. The patient may usually present with pulpal involvement in the teeth that have no caries, history of trauma,[6] and periradicular abscess also present in this case.

In this case, the patient presented with peri apical bone loss. Odontoplasty can be used to treat the groove and the groove can be filled using Glass Ionomer Cement. Hans MJ et advocated that Glass Ionomer Cement shows epithelial and connective tissue adherence during the healing process which is same as formation of long junctional epithelium. [7] Guided tissue

regeneration was done in this case using amniotic membrane. Amniotic membrane as a GTR membrane comprises of a single layer of epithelium cells, thin reticular fibers (basement membrane), a thick compact layer, and a fibroblast layer. The basement membrane consists of collagen type III, IV, and V and cell-adhesion bioactive factors such as fibronectin and laminins. It plays crucial role in gingival cells cellular adhesion and concentrations of this glycoprotein in amniotic allograft can be of use for periodontal grafting procedures.[8] The post op view showed significant regeneration of bone.

First the endodontic treatment of the teeth is completed before starting of periodontal treatment, in case of endodontic involvement. Prognosis of the treatment depends on the apical extension of the groove. Treatment of shallow grooves is more successful while a deep groove with a poor prognosis is difficult to treat.[3]

Due to the complexity of a palatogingival groove, the defect may present itself with symptoms of true periodontal disease or may be manifested as a true endodontic problem or combination of both.

Conclusion

Diagnosis of the palatal radicular grooves is very critical, due to diagnostic complexity the problems may arise if it is not properly diagnosed and treated. Cautious periodontal probing should be done because deep isolated periodontal pockets can be recognised associated with Palatogingival Grooves.

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