Case Report

THE PALATOGINGIVAL GROOVE - AN ASSASSIN

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ABSTRACT

This case report describes a two year follow-up study of a palatogingival groove on maxillary lateral incisor which extended till the apical third of the root. The groove was treated using a tapered fissure diamond bur followed by Glass Ionomer restoration on same. A crater like defect which was noted upon reflection of flap was filled using a synthetic alloplast hydroxyapetite bone graft material. Timely diagnosis and a combined treatment approach involving saucerization & regeneration procedure allowed salvaging the tooth.

KEY WORDS Palatogingival Groove, Developmental Anomaly, Periodontal Regeneration

INTRODUCTION

Palatogingival Groove (PGG), Distolingual groove, Radicular lingual groove (RLG), palato-radicular groove(PRG), Cinguloradicular groove and corono radicular groove(CRG) are synonyms for a mild developmental malformation that runs mostly from cingulum to CEJ & occurs mostly in the lingual aspect of maxillary incisors and have been described by Everett & Kramer (1972) [1]and Robison & Cooley(1982)[2].

Its probable formation factors may include :-

1. Infolding of the enamel organ & the epithelial sheath of Hertwig during odontogenesis [3]
2. Aborted formation of an additional root [4]
3. Resultant genetic alteration.[5]
4. Mild form of dens invaginatus
5. Racial link has also been proposed.[6]

Goon et al, (1991)[7] suggested a classification, which represents two types of RLGs, simple and complex.

1. The simple RLGs do not communicate with the pulp and represents a partial unfolding of HERS.
2. While complex RLGs communicate directly with the pulp and groove that extend the length of the root.

PGG is most often missed during the diagnosis and treatment planning. The funnel shaped groove harbors bacterial plaque and calculus often resulting in periodontal pockets and bone loss. The treatment modalities vary from combined Endo- Perio treatment, curettage, saucerization of groove and sealing with a filling material. In cases of deep defects with resultant pocket formation & bone loss, grafts and barrier membranes may be used in conjunction with open flap debridement. The present case report presents a maxillary lateral incisor with deep PGG and its treatment.

CASE REPORT

A female patient aged 33 yrs reported to the Dept. of Periodontology, Jaipur Dental College and Hospital , Jaipur , India with chief complaint of spacing concerning upper front teeth and sensitivity in the same. The history of chief complaint revealed that the sensitivity was mainly during consuming cold food which started for the past 6 months and gradually increased. Pathologic tooth migration which caused increase in spacing between upper anteriors was noticed by the patient for the past few months. On intra oral examination, patient diagnosed to have

generalized chronic periodontitis with pocket ranging between 5-7 mm.

- Grade II Mobility irt- 36,37,46,47
- Grade III Mobility irt - 38,48 (Poor Prognosis)
- Grade II Furcation irt- 46,47,48

On clinical examination of the palatal surface of 12 a fine groove was noticed which started at the cingulum and travelled apically and mesially. It was a simple type of palatogingival groove.Further Periodontal examination consisted of measuring pockets using UNC15 probe. Periodontal pocket of 10 mm (Fig.1) was present in right upper lateral ie, 12 numbered teeth at mesiopalatal & midpalatal region . Intraoral periapical radiographs with gutta percha (Fig.2) to trace the depth of the pocket were taken.

Fig 1: 10 mm deep Palatogingival groove

Fig 2: IOPAR with GP Tracing

Pulp vitality test done using a pulp tester which was positive, therefore suggestive of no pulpal involvement thus only requiring a periodontal therapy. The phase I periodontal therapy consisted of oral hygiene instructions and scaling and root planning. After re-evaluation of phase I therapy at one month it was noted that the 10mm pocket was still persistent .Thus a decision to perform periodontal surgery in the upper anterior region was taken after obtaining a written informed consent. Kirkland flap was raised in the 11,12,13 region(Fig.3). After flap elevation root surfaces were scaled and planed using currettes.

Fig. 3: Flap Elevation:

Fig.4: Crater Like Bony Defect

Saucerization till the depth of the groove was carried out using a tapered fissure diamond bur followed by restoration using Glass Ionomer Cement type –II (Fig.4). Upon reflection, a crater like bony defect was appreciated (Fig.4) in relation to 12 towards the apical region of the root and was treated with reconstructive procedure where a synthetic alloplast hydroxyapatite bone graft material (NOVABONE PUTTY) was placed(Fig.5). Sutures were placed and patient recalled after 7 days, at Month 1, 12, 24 for

follow-up. Pocket reduction along with bone regeneration could be appreciated in the follow – up visits(Fig.6).

Fig. 5: Synthetic Alloplast Hydroxyapatite Bone Graft Material Placed

Fig.6 : Month 24 Follow-up

DISCUSSION

The radicular lingual groove is most often missed out during oral examination so dentists must be cautious in establishing a perfect diagnosis for this developmental defect. (August DS et al 1978)[8]. The treatment of radicular groove presents a clinical challenge to the operator and must involve a multi disciplinary approach. This defect may often harbor bacterias and debris leading to a local inflammatory reaction and once the epithilium is breached, the inflammatory process progresses apically creating self sustaining periodontal defect.(Withers et al 1981) [9] In the present case report of radicular groove combined treatment modality involving elimination of the groove and periodontal regeneration therapy was planned. Meister et al 1983 and Barkhordar et al 1989 successfully used GIC in the treatment of palato gingival groove, they also emphasized on the biocompatibility of the material. Depending upon the extent of the defect, regenerative modalities were selected including placement of synthetic bone graft, autogenous PRF and resorbable collagen membranes. Tom G et al, 1988 used the Bioactive glass materials as graft for regeneration followed by placement of a membrane over the defect to provide a scaffold and provide epithelial extrusion .

CONCLUSION

Deep radicular groove can pre-dispose to pulp necrosis and the establishment of combined Endo-Perio problem. Evaluation of clinical signs and appropriate diagnostic tests are of paramount importance in order to prevent deterioration of attachment of apparatus. Advanced periodontal regeneration treatment modalities can help us to salvage the problems associated with this developmental anomaly. Further research with use of other restorative as well as regenerative materials, and long term follow-up is required.

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