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Diagnosis & Management of Labiogingival Groove: A Case Report

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Abstract **Case Report**

Labiogingival groove is a congenital morphologic dental anomaly, in which an infolding of the inner enamel epithelium and Hertwig's epithelial root sheath create a groove extending varying depth into root. Epithelial attachment can be breached by gingival irritation secondary to plaque accumulation creating a periodontal defect. A 24-year-old boy reported with the complaint of a dull gnawing pain from labial gingival surface in the maxillary left central incisor for 2 to 3 months. Intraoral examination revealed inflamed gingiva with loss of contour in relation to maxillary left central incisor. A diagnosis of localised periodontitis was given and required treatment was carried out. On exposure of the involved tooth, a labiogingival groove was noticed which could have been a contributing factor for the increased disease activity at the concerned site.

Keywords: Labiogingival Hertwig's infolding Diagnosis Management.

INTRODUCTION

Anatomic aberrations are often seen in the human dentition. The maxillary incisor region of permanent dentition where these aberrations are most likely seen is considered as an area of hazard. Aberrations affecting the internal & the external morphology can at times be the cause of complex pathological conditions affecting the pulpal and the periodontal structures can at times pose challenge to the clinician when it comes to diagnosis and clinical management. One such anatomical aberration is the formation of developmental groove which has its location most likely along the palatal surfaces of maxillary incisor tooth, in a study by Everett and Kramer [1] 1972 it was seen 93.5% of these grooves are along the palatogingival aspect of maxillary lateral incisor however these grooves may also have their location along the labial surfaces of maxillary central incisor with a prevalence rate of 3-6.5% as reported by Brin et al. [2]. The labiogingival notch appears as an enamel depression close to the cementoenamel junction (CEJ), with a depth that varies from a shallow depression to a deep groove. It can be identified using a periodontal probe. The gingival margin closely follows the normal contour of the enamel, whereas in the case of a deep notch, it acquires an irregular contour because of extension of the gingival tissue into the defect. Brin and Ben-Bassat [3] stated that this defect is due to trauma during childhood. Thus, one must enquire about the possibility of any injury during childhood when such a defect is noted. A shallow defect may not be visible unless probed, whereas a deeper defect may require treatment for esthetic purposes. In such cases, placement of a restoration and gingival recontouring may be considered. These grooves are often overlooked as etiologic factor hence this case report describes the diagnosis and clinical management of a maxillary central incisor with localized periodontal destruction associated with a radicular labial groove.

CASE REPORT

A 24 year-old male patient reported to our clinic with a chief complaint of dull, gnawing, intermittent pain with respect to upper front teeth. On examination a localized gingival inflammation was present with the accumulation of plaque and calculus with respect to 21 and 22. Periodontal examination revealed a probing pocket depth of 7 mm on the distolabial aspect of 21. Intra oral radiograph examination revealed interdental bone loss with respect to 11, 21 and 22.

Fig-1: Pre-Operative View

Fig-2: Pre-operative view

Fig—3: Pre-operative radiograph

Phase I therapy consisted of oral hygiene instructions and scaling and root planing. The patient was reviewed after a week. Clinical symptoms subsided, but periodontal pocket was still present with respect to 21 and 22, Decision to perform periodontal surgery in the upper anterior region was taken. Following debridement a groove was noticed along the labial surface of maxillary left central incisor which began at cervical aspect of 21 and terminated at the middle third of the root surface, the groove was then restored with GIC and defect was noticed between 21 and 22 which was filled with demineralized bone matrix bone graft following which sutures and periodontal dressing was given.

Fig-4: Flap reflection & debridement

Fig-5: Presence of labiogingival groove

Fig-6: Restoration of the groove with gic

Fig-7: Sutures placed

Fig-8: Periodontal dressing

Patient was recalled after a week for suture removal periodontal healing was satisfactory with gingival health stable, on another follow up visit at 6 months pocket depth reduced to 2 mm and the radiographic examination revealed bone fill with respect to 21 and 22. However there was bleeding on probing due to poor oral hygiene maintenance despite adequate reinforcement.

Fig-9: Six Months Radiograph

Fig-10: Six Months View

DISCUSSION

Labiogingival groove is a notch which starts on the cervical enamel and extends to the radicular surface and has also been termed as labial-cervical vertical groove (LCVG) or labiogingival notch. In a study conducted by Shpack et al. [4] out of 1250 patients examined, 66 exhibited LCVG (5.3%) in one of the upper incisors. LCVG was present mostly in a single configuration (71.2%) with a significantly more distribution in the central incisors (94%). Various morphologic anomalies can predispose to periodontal diseases that include cervical enamel projection, palato-radicular grooves, and enamel pearls [5, 6]. The radicular groove involves the external surface of both the crown and root, this unique clinical feature allows localized periodontal disease to develop readily and breakdown the fragile sulcular attachment adjacent to the defect [7]. The groove can vary in depth, extent and complexity. However, in our case report, labiogingival groove was reported. The labiogingival groove appears as enamel depression close to the CEJ, whose depth varies from a shallow depression which can be identified primarily by probing to deep groove. The prognosis of a tooth with a radicular groove depends mainly on the location and extension of the groove. When the groove is entirely located in the crown of the tooth terminating at the CEJ and when it is shallow, the prognosis can be estimated as good since there will be neither a deep bony defect nor pulpal damage. Simple treatment, including curettage of granulation tissue, improvement of oral hygiene and sometimes elimination of the groove by means of saucerization may be considered. Saucerization involves elimination of the defect to the crestal bone level with rotary cutting and polishing instruments. It has been a helpful method in eliminating shallower grooves as reported by Meister et al. [] However, when grooves are deep treatment is almost always doomed to failure. Materials such as composite and amalgam have been used to fill the palatoradicular groove (Brunsvold et al.) [9]. However in this case, since the groove was deep, it was conditioned and sealed with glass–ionomer cement. This technique of conditioning and sealing the groove

with luting glass–ionomer cement was considered due to its biocompatibility and its ability to promote connective tissue fibers attachment. It is a very conservative approach for eliminating deep grooves. Conditioning of the groove removes the surface debris, increases the wettability and increases the bond strength of glass–ionomer cement (Powis et al.) [10]. Glass–ionomer cement was used, since it has an antibacterial effect, chemical adhesion to the tooth structure and good sealing ability (Maldonado et al.) [11]. Clinical and histological studies have reported that there is an epithelial and connective tissue adherence to glass–ionomer cement during the healing process (Dragoo et al.) [12]. In the present case, since the groove was extended onto the root surface with substantial periodontal destruction, a flap procedure, including curettage of granulation tissue and root planing, was undertaken. Since there was an advanced bony defect, a xenograft was placed to promote bone regeneration.

CONCLUSION

- This case report presented the successful treatment of localised periodontitis with respect to maxillary central incisor associated with radicular labial groove.
- The key to achieving long-term favorable results in this particular type of developmental anomaly is accurate diagnosis and elimination of inflammatory irritants and contributory factors.
- Clinician's awareness of existence of such a developmental anomaly may help to avoid misdiagnosis and improper treatment of these patients.

REFERENCES

1. Everett, F.G., Kramer, G.M. (1972). The distolingual groove in the maxillary lateral incisor: a periodontal hazard. Journal of Periodontology, 43, 352–61.
2. Ben‐Bassat, Y., Brin, I. (2001). The labiogingival notch: An anatomical variation of clinical importance. J Am Dent Assoc; 132:919‐21.
3. Brin, I., Ben‐Bassat, Y. (1998). Appearance of a labial notch in maxillary incisors: A population survey. Am J Phys Anthropol; 80; 25‐9.
4. Shpack, N., Dayan, T., Mass, E., Vardimon, A.D. (2007). Labial cervical vertical groove (LCVG) distribution and morphometric characteristics. Arch Oral Biol; 52:1032‐6.
5. Lee, K.W., Lee, E.C., Poon, K.Y. (1968). Palato‐gingival grooves in maxillary incisors. A possible predisposing factor to localised periodontal disease. Br Dent J, 124; 14‐8.
6. Peikoff, M.D., Trott, J.R. (1977). An endodontic failure caused by an unusual anatomical anomaly. J Endod, 3; 356‐9.
7. Kozlovsky, A., Tal, H., Yechezkiely, N., Mozes, O. (1988). Facial radicular groove in a maxillary central incisor. A case report. J Periodontol, 59; 615‐7.
8. Meister, F., Keating, K., Gerstein, H., Mayer, J.C. (1983). Successful treatment of a radicular lingual groove: case report. Journal of Endodontics, 9, 561–4.
9. Brunsvold, M.A. (1985). Amalgam restoration of palatogingival groove. General Dentistry, 33, 244–6.
10. Powis, D.R., Folleras, T., Marsen, S.A., Wilson, A.P. (1982). Improved adhesion of glass–ionomer cement to dentin and enamel. Journal of Dental Research, 61, 1416–22.
11. Maldonado, A., Swartz, M.L., Phillips, R.W. (1978). An in vitro study of certain properties of glass–ionomer cement. Journal of American Dentistry, 96, 785–91.
12. Dragoo, M.R. (1997). Resin ionomer and hybrid ionomer cements: Part II. Human clinical and histologic wound healing responses in specific periodontal lesions. International Journal of Periodontics and Restorative Dentistry, 17, 75–87.