

## Case Report

### Combined Endo-Perio approach in the treatment of Intrabony defect associated with a labial groove: A Case Report

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#### ABSTRACT:

Infolding of the inner enamel epithelium and Hertwig's epithelial root sheath create a groove called as Labiokingival groove which extends to a varying depth into root. It is basically a congenital dental anomaly. The aim of this report is to present the management of a case affecting periodontal attachment apparatus due to the presence of a labiokingival groove. A 30-year-old male reported with the complaint of dull, gnawing, intermittent pain along with pus discharge with respect to upper front teeth since 3 months. Intraoral examination revealed purulent discharge to maxillary left central incisor. A provisional diagnosis of localized gingival abscess in relation to maxillary left central incisor was given, and required surgical procedure was carried out. A labiokingival groove was noticed on exposure of tooth which could have been a contributing factor for the progression of the condition.

**Keywords:** Labiokingival groove, periodontitis, dental plaque

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#### INTRODUCTION

Dental plaque is one of the principal etiologic factor initiating periodontal destruction. Bacterial foray and infection are often the main cause of pulpal inflammation and tooth loss in many cases of tooth malformation.<sup>1</sup> Virulent periodontal pathogen may harbour which may lead to site specific localized periodontitis at the area of labiokingival groove. Thus proper clinical examination and diagnosis can have a significant impact in preventing any attachment loss and improving the prognosis of tooth.<sup>2</sup>

Brin and colleagues first observed the labiokingival notch in a population study of children who experienced injury to their deciduous incisors. Although trauma to these teeth was suspected as a possible etiologic factor in this phenomenon, it has been found that there is no correlation between the

appearance of the labiokingival notch and previously encountered trauma to the deciduous dentition.<sup>3</sup>

The labiokingival groove appears as an enamel depression close to the cemento-enamel junction, whose depth varies from a shallow depression to a deep groove. The gingival margin closely follows the enamel contour, appearing almost normal in the case of a shallow notch, while in the case of a deeper groove, it acquires an uneven contour because of extension of the gingival tissue into the defect.<sup>4,5</sup>

The first researcher to describe the grooves as a malformation during embryo development was Black in 1908.<sup>6</sup>

#### CASE REPORT

A 30 year-old male patient reported to the Department of Periodontology, with a chief complain of dull, gnawing, intermittent pain along with pus discharge

with respect to upper front teeth. Periodontal examination revealed Miller Class 1 gingival recession with probing pocket depth of 11 mm on the labial aspect of tooth number 21. The tooth had Grade I mobility. Intra oral radiograph examination revealed interdental bone loss with respect to 21 and 22. Patient reported non-contributory medical history with no past history of trauma. The case was diagnosed provisionally as localized gingival abscess in relation to maxillary right incisor based on findings. Root canal therapy was first performed and Patient was recalled after 1 month. Preliminary phase consisted of oral hygiene instructions along with scaling and root planing. There were no clinical symptoms after a week, but periodontal pocket was still present with respect to 21 and 22. Thus decision was taken to

perform flap surgery in the upper anterior region. (Figure 1).

Saucerisation of groove was performed along the labial surface of maxillary left central incisor which began at cervical aspect of 21.

The bone defect between 21 and 22 was filled with demineralized bone matrix bone and bioactive glass (perioglas). Following this, Guided Tissue Regeneration (GTR) membrane (periocol) was placed. The flap was sutured using 3-0 black braided silk suture (mersilk) and periodontal pack was given. Patient was recalled after 8 days for suture removal. Periodontal healing was satisfactory with gingival health stable. On follow up visit at 6 months, pocket depth reduced to 3 mm and the radiographic examination revealed bone fill with respect to 21 and 22 (figure2-10).



Figure 1): Preoperative, 2): Preoperative Probing Depth, 3): After Scaling and Rot planing, 4): Reflection of Periodontal Flap



Figure 5): Placement of Bone graft, 6): Placement of Collagen membrane, 7): Placement of Sutures, 8): Postoperative



Figure 9): Preoperative Radiograph, 10): Post-operative Radiograph after 3 months

## DISCUSSION

Tooth malformation acts as a significant etiologic factor possibly providing access of periodontal pathogens deep into gingival sulcus thus leading to periodontitis. A labiokingival groove appearing on the enamel of maxillary central incisors seems to be a significantly associated with poor periodontal health.<sup>7</sup> The present case describes intrabony defect with localized periodontitis associated with labial groove. Earlier the aetiology of this defect was thought to be due to trauma to the developing tooth bud<sup>7</sup>, but presently it is considered to arise as a developmental defect due to the vertical extension of the mammelon groove.<sup>8</sup>

Mass et al ranked severity of Labial Cervical Vertical Groove (LCVG) in three stages i.e: 1) a mild subgingival shallow groove below the marginal gingiva that can be felt only by probing. 2) a moderate groove that can be detected with the eyes which extends subgingivally as in (1), and additionally supragingivally on the labial crown surface, not more than 2 mm from the marginal gingiva in the incisal direction and 3) a severe defect which extends supragingivally more than 2 mm from the marginal gingiva on the labial crown surface and further subgingivally.<sup>9</sup> Based on above classification our case can be classified as a severe defect which extends supragingivally more than 2 mm from the marginal gingiva on the labial crown surface and further subgingivally.

The genetic impact on Labial Cervical Vertical Groove (LCVG) formation was primarily supported by the high prevalence in siblings within the LCVG patients, an increased incidence in males, exclusive pattern of allocation distribution, and high occurrence of bilateral double-configuration of LCVG patients. The percentage of siblings within LCVG patients was high (16.7%) compared to the general population (5.3%), which implies a strong genetic trait in the development of LCVG.<sup>10</sup> Kozlovsky et al reported that the maxillary central incisor labial groove is

directly associated with vertical interdental bone loss<sup>11</sup> and our findings support these observations.

Based on the type of the grooves the different treatment options that have been put forth are gingivectomy, combined endodontic and periodontal treatment, odontoplasty or saucerisation and conservative treatment by eliminating the grooves with restorative materials.<sup>12, 13</sup>

In the present case, we did saucerisation of labial groove, debridement of subgingival calculus and granulation tissue followed by graft placement (perio-glass) along with membrane (perio-col).

## CONCLUSION

Proper identification of labial groove is of utmost importance because it not only complicates the periodontal prognosis but also serves as a contributing factor for endodontic problems. Preventive correction helps in improving the prognosis of affected tooth. Thus earlier diagnosis and management helps in achieving optimal endodontic and periodontal outcomes.

## REFERENCES

1. Ballal NV, Jothi V, Bhat KS, Bhat KM. Salvaging a tooth with a deep palatogingival groove: an endo-perio treatment: A case report. *Int Endod J* 2007;40:808-17.
2. Withers JA, Brunsvold MA, Killoy WJ, Rahe AJ. The relationship of palate-gingival grooves to localized periodontal disease. *J Periodontol* 1981; 52:41-44.
3. Brin I, Fuks A, Ben-Bassat Y, Zilberman Y. Trauma to the primary incisors and its effect on the permanent successors. *Pediatr Dent* 1984; 6(2):78-82.
4. Ben-Bassat Y, Brin I. The labiokingival notch: an anatomical variation of clinical importance. *J Am Dent Assoc.* 2001 Jul;132(7):919-21.
5. Juneja, M. Labiokingival notch. *Br Dent J* 203, 560 (2007).
6. Black GV. *Operative dentistry: pathology of the hard tissues of teeth.* Chicago: Medico- Dental Publishing, 1908
7. Ben-Bassat Y, Brin I. The labiokingival notch: an anatomical variation of clinical importance. *J Am Dent Assoc.* 2001;132:919- 921.

8. Srinivas TS, Pradeep NT. Bilateral facial radicular groove in maxillary incisor. *J Interdiscip Dent.* 2012;2:41-3.
9. Mass E, Aharoni K, Vardimon AD. Labialcervical-vertical groove in maxillary permanent incisors-prevalence, severity, and affected soft tissue. *Quintessence Int.* 2005;36:281-6.
10. Shpack, N., Dayan, T., Mass, E., & Vardimon, A. D. (2007). Labial cervical vertical groove (LCVG) distribution and morphometric characteristics. *Archives of Oral Biology*, 52(11), 1032–1036.
11. Kozlovsky, A., Tal, H., Yechezkiely, N., & Mozes, O. (1988). Facial Radicular Groove in a Maxillary Central Incisor. *Journal of Periodontology*, 59(9), 615–617
12. Shah MP, Gujjari SK, Shah KM. Labial-cervical-vertical groove: A silent killer-Treatment of an intrabony defect due to it with platelet rich fibrin. *J Indian Soc Periodontol* 2014;18:98-101.
13. Ashwini S, Singh N, Shetty B. Labial cervical vertical groove: Hidden route to periodontal destruction. *J Dent Orofac Res* 2016;1:36-40.