

Palatogingival groove – a mysterious villain.

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INTRODUCTION :

Palatogingival groove or radicular lingual groove (RLG) is a developmental anomaly that occurs as developmental infoldings of the inner enamel epithelium and Hertwig's epithelial root sheath (HERS), involving primarily maxillary central and lateral incisors. RLG formation presumably represents an aborted attempt to represent an additional root.

The presence of RLG does not always indicate the development of pathology. In most cases the epithelial attachment remains intact across the groove. Once the attachment is breached, a self-containing pocket forms along the length of the groove or by gingival irritation secondary to microbial plaque retention. Plaque accumulation in radicular/ palatogingival grooves can be difficult or almost impossible to control using oral hygiene measures leading to periodontal and pulpal pathology. Withers et al² in 1981 observed that palatogingival grooves are found on 2.3% of maxillary incisors (4.4% maxillary laterals and 0.28% of maxillary centrals) Everett¹ in 1972 observed that palatogingival grooves found on 2.8% of lateral incisors. While Kogon in 1986 examined 3168 extracted maxillary central and lateral incisors. Palatogingival grooves found on 4.6% of maxillary incisors (3.4% maxillary centrals and 5.6% on maxillary lateral incisors) 54% of palatogingival grooves terminated on the root with 43% of those extending less

than 5mm and 47% extending 6- 10mm. He, from his research, stated that, the groove can be found in cingulum, followed by lateral fossa, cemento-enamel junction, and root in decreasing order. He also found that most common location is in the midpalatal area of lingual surface followed by distal and then mesial.

Goon W.W (1991) *et al.* suggested a classification, which represents two types of RLGs, simple and complex. The simple RLGs do not communicate with the pulp and represents a partial unfolding of HERS, while complex RLGs communicate directly with the pulp and groove that extend the length of the root. In rare cases, the groove may lead to minor accessory root, which may contain a root canal.

CASE REPORT

A 31 yr old female patient visited the Department of Conservative dentistry & Endodontics, Panineeya institute of dental sciences, Hyderabad presenting a chief complaint of severe pain in upper front tooth region.

History : patients presents a history of pain for 2 weeks, which was initially mild and gradually turned severe since 3 days before the dental visit. The pain is of continuous and throbbing type. Pain aggravated on application of pressure and on consuming cold foods.

Clinical presentation : On extra-oral examination there were no palpable lymph nodes, face was bilaterally symmetrical and lips were competent. On intra-oral examination gingival color was reddish, gingival contour showed loss of knife edge pattern of marginal gingiva, consistency was soft and edematous and surface texture was rough with presence of stippling in posterior teeth. Patient had generalized stains and plaque deposits in palatal aspect of teeth. There was no mobility observed with the teeth.

Clinical intraoral examination of anterior teeth showed gingival color was reddish, gingival contour showed rolled out marginal gingiva, consistency edematous and

surface texture was smooth withof loss of stippling in the upper anterior region. Plaque deposition, stains and calculus deposits are observed in tha palatal aspect. The groove was observed on the mesial aspect of right central incisor (11) extending from cingulum to subgingivally laterally and apically. Periodontic evaluation showed loss of marginal gingival integrity in the palatal aspect and periodontal pocket less than 3mm. on radiographic examination, a the groove can be appreciated as a fine line in the mesial aspect extending 3mm below the alveolar crest. Widening of lamina dura was observed distinctly .

Vitality tests : cold test gave immediate response with lingering pain for 5-10 min and EPT showed a early response at 2.

Diagnosis: Perio – Endo lesion presenting a Acute periapical abscess irt 11.

TREATMENT PLANNING:

Aim of the treatment : preliminary endodontic management followed by surgical correction of the palatogingival groove.

Procedure : As per patient's chief complaint and presentation of acute symptoms, emergency endodontic access opening irt 11 was initiated . Serous exudate drainage was observed and patient was kept under observation with open dressing for 4 hrs. later after no visible drainage, the root canal was negotiated. Single oval canal was observed and pulpal remnants are flushed out and closed dressing was given. Patient was administered with oral analgesics and antibiotics .

On the following day glide path was established and working length determination was done. Initial chemomechanical preparation was conducted and intracanal medicament of calcium hydroxide (Ca(OH)₂) and metrogyl was transported in to the root canal. At 1 week recall, patient was completely asymptomatic. Chemomechanical preparation done using NaOCl and saline irrigants and obturation by lateral condensation technique.

Multiple radiographs in 2 different angulations were taken to determine the extent of paltogingival groove apically and laterally and was determined to be 3mm below alveolar crescent extending mesially. To repair the palatoginigival groove

decision to perform periodontal surgery in the upper anterior region was taken. Palatal Papilla preservation flap was raised in the upper anteriors as explained by Takeiet al in 1992.

Palatal flap rendered the entire length and extent of the palatogingival groove. loss of marginal alveolar bone palatally increased the accessibility to the groove. The groove is of 6mm in length from coronal to apical had a depth of 1mm throughout its length. The groove was restored with GIC type 1 to its length. The flap was repositioned and sutured are placed.

Postoperative instructions and medications were given 1). Cap Amox 500 mg tid. 2). Tab Flagyl 400 mg tid 3). Tab Imol plus bid. There was no postoperative complications and the patient was re evaluated at 1,6 and 12 months and after 12 months the pt is asymptomatic with normal lamina dura dura width showing fair prognosis.

FIGURES OF THE CASE



Dalatogingival groove



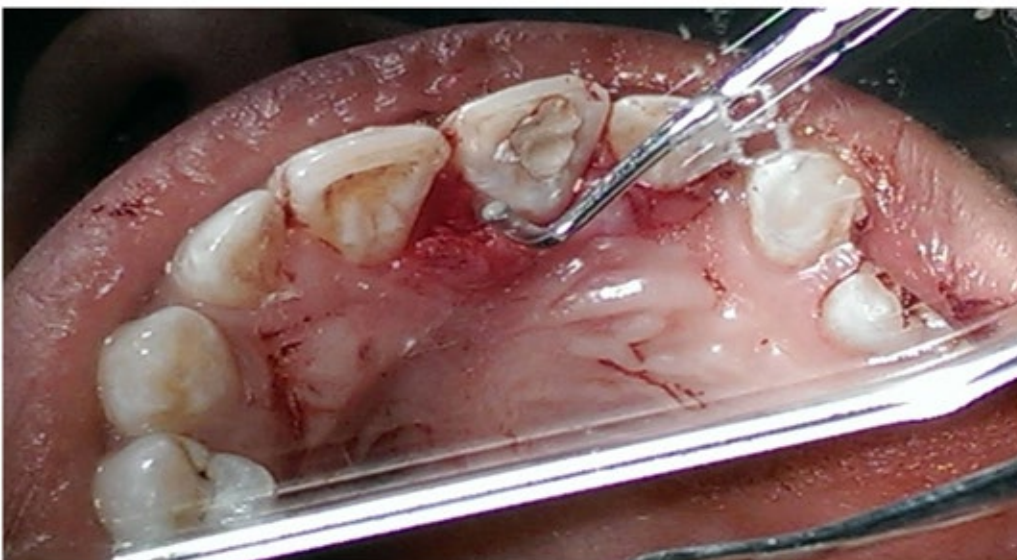
Master cone selection



obturation



Elevation of palatal flap



**EIC type 1 fill in to the
groove**



**Immediate
Post operative**



Before surgery



After groove fill

Conclusion : A palatogingival groove is a hazard for periodontal as well as endodontal problems. Although the incidence of palatogingival grooves is only 8.5%. We should have an eye to recognize them early and diagnose their extent and pulpal involvement in order to save the patient from periodontal destruction and pulpal damage.

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