



MANAGEMENT OF PALATOGINGIVAL GROOVE: A REVIEW

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ABSTRACT

A palatogingival groove is a developmental anomaly .most commonly seen in palatal aspect of maxillary lateral incisor .palatogingival groove often predisposes to pulpal necrosis and establishment of combined periodontal –endodontic lesions. So this defect can be treated successfully using combined endodontic and periodontal therapy. This review describes the etiology, clinical features, radiological findings, prompt diagnosis and management .The knowledge of tooth anatomy and its morphological defects helps in establishing a perfect diagnosis. Proper understanding of endo-perio relationship is important for treatment planning.

INTRODUCTION

PGG is defined as “a developmental groove in a root that, when present is usually found on the lingual surface of maxillary incisor teeth” [3,11].The other names of PGG is distolingual groove, coronoradicular groove, radicular lingual groove, the radicular groove, palatoradicular and facial radicular groove [1,4,7]. The groove starts near the cingulum of the tooth and runs down the cement-enamel junction, in apical direction, continuous at various depth along the root [1,4,8]. A majority of palatogingival grooves (93.8%) affects maxillary lateral incisors [1,12]. This developmental anomaly has been implicated as a reason for localised gingivitis and periodontitis, which creates pulpal pathology [7]. This anomaly generally has funnel like shape, which forms hollow surface, where bacterial plaque and calculus leads to breach epithelial attachment .The epithelial attachment may be breached due to endodontic involvement. Inflammation can progress from an apical lesion causing primary endodontic\secondary periodontic

Lesion [7,13]. Until recently if a tooth is present with a draining sinus tract and periodontitis, it would be extracted due to contraindicated endodontic treatment and hopeless periodontic prognosis. As a result many teeth sacrificed unnecessarily [6]. So such a developmental anomaly with no history of dental caries or trauma but tooth is non-vital and cause loss of attachment, Now a days this defect can be treated successfully using combined endodontic and periodontic therapy [3,10].

Etiology

The etiology of palatogingival groove is not fully understood .But clinicians believe that represent an infolding of enamel organ and epithelial sheath of hertwig (walker and jones, 1983) [4]. Some authors proposed that this defect is a variant from dens invaginatus [2]. Ennes and lara suggest that PGG could be result of an alteration of genetic mechanism [7]. Some have suggested that anomaly results from an attempt to form another root. Presence of palatogingival groove acts as “plaque traps” facilitating the development of combined endodontic-periodontal lesion. Some have suggested that anomaly results from an attempt to form another root .The incidence of palatogingival groove is reported between 2.1% and 18% [2,3], prevalence 4.6 [5].

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Clinical features

The clinical significance of PGG is related to the incidence of localised periodontitis with or without pulpal pathosis, depending on the depth, extent and complexity of the groove [1]. According to their location they are differentiated as distal, mesial and central patterns [3]. Most of patients will present with complaint of dull intermittent pain, mobility, pus discharge. There is no history of dental caries, trauma, discoloration of the teeth. The teeth will have no response to thermal and electric pulp testing [1,3]. Clinically present as funnel shaped hollow grooves with accumulation of plaque and calculus, which act as secondary local periodontitis [5]. Presence of loss of epithelial attachment, pocket formation, bleeding on probing, pus discharge and sinus tract opening [1,4], Goon classified palatogingival groove as simple and complex [3,14]. Simple palatogingival groove do not have communication with the pulp and terminate at the cemento-enamel junction. The complex palatogingival groove have direct communication with the pulp and extended to various lengths along the root [7].

Diagnosis

The knowledge of tooth anatomy and the aetiology offers a strong base for establishing a perfect diagnosis based on both clinical and radiographic findings [1]. Clinically severe localized periodontitis and also groove on the lingual surface with pus discharge, pain on percussion and no response to thermal and electric pulp testing. On radiographic examination a radiolucent “para pulpal” line superimposing over the root canal and pear shaped radiolucency is seen in the coronal aspect, apical periodontal widening and necrosed pulp. Pulpal and periodontal pathology can be seen which is diagnosed as combined endodontic and periodontal lesions [1,6].

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Management

Palatogingival groove can be managed by combined endodontic and periodontal treatment modalities.

Our treatment approach should be based on 1.) Complete eradication of microbials. 2.) Permanent thorough sealing of root groove which communicating between root canal and periodontium. 3.) Periodontal regeneration and the complete health of periodontium [5].

For mild and simple grooves curettage and apically repositioned flaps are recommended. For shallow grooves, surgical exposure gingivectomy followed by saucerisation and apicectomy and sealing of the groove with retrograde restorative material [4-6,10]. The first and foremost treatment modality is oral prophylaxis, root canal treatment for necrosed pulp. Initially antibiotics were prescribed, oral prophylaxis, root canal treatment, surgical exposure, curettage, saucerisation, apicectomy, grafting and retrograde restoration. Restorative material should be used are glass ionomer cement, amalgam, MTA and biodentine. The restorative material should provide hermetic seal and biocompatible.

CONCLUSION

Deep radicular grooves can predispose to pulp necrosis and the establishment of combined endodontic and periodontal problems. Evaluation of clinical signs and appropriate diagnostic tests are important in order to prevent incorrect diagnosis and incorrect treatment. Combined endodontic-advanced periodontal regeneration help to solve problem associated with this developmental groove. Accurate diagnosis and elimination of the inflammatory irritants and contributing factors are extremely important in achieving successful treatment outcome.



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