SURGICAL MANAGEMENT OF A PALATAL RADICULAR GROOVE AND AN ASSOCIATED PERIODONTAL LESION IN A MAXILLARY LATERAL INCISOR

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The presence of a palatal-radicular groove (PRG), more frequently observed at the level of the upper lateral incisors, may compromise both the radicular pulp and the periodontium leading to endodontic-periodontal lesions. Frequently, the prognosis of such cases is compromised because of the missed diagnosis or because of the complex therapeutic approach that is necessary to cure the associated pathologies. The authors have presented a clinical case of a palatal-radicular groove on a non-vital maxillary lateral incisor with associated localized periodontal disease. The general clinician's initial diagnosis was incorrect; this led to incomplete treatment and subsequent failure of the treatment. Subsequent retreatment was carried out for failed root canal treatment followed by surgical management of palatal-radicular groove.

Keywords: Palatal radicular groove, maxillary lateral incisor, surgical, GIC.

Palatal-radicular grooves in maxillary lateral incisors have been implicated as an initiating factor in localized gingivitis and periodontitis[1,2]. Focal loss of periodontal attachment associated with these grooves, some of which may extend to the apical third of the root, could result in a hopeless prognosis for tooth retention[2,3]. The palatal-radicular groove is a developmental anomaly in which an infolding of the inner enamel epithelium and Hertwig's epithelial root sheath create a groove that passes from the cingulum of maxillary incisors apically onto the root[3]. Radicular lingual grooves can create periodontal and pulpal pathology, but they may be difficult to identify as an etiological factor. Palatal radicular grooves are developmental anomalies of the maxillary incisor teeth which usually begin in the central fossa, cross the cingulum, and may extend varying distances apically, and possibly reaching the root apex. They can be in the mid-palatal, mesial, or distal region of the tooth. Palatal radicular grooves extending apical onto the root have been regarded as funnels for the retention of microbial dental plaque.[4,5,6] This article illustrates the successful management of a non vital maxillary lateral incisor with failed root canal treatment and a localized periodontal defect due to the presence of a palatal radicular groove.



Fig. 1: Pre-operative Radiograph.

Case Report

A patient aged 21 years reported to the Department of Con-



Figure 2 : Pre-operative photograph.

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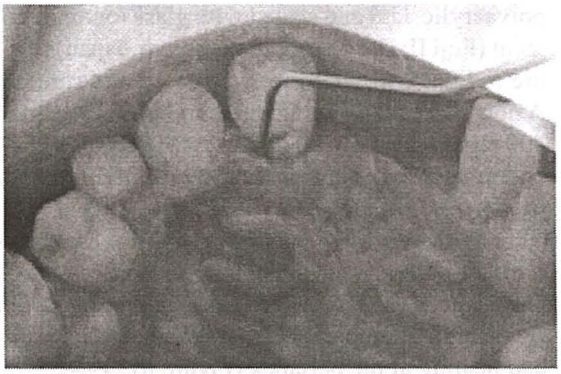


Figure 3 : Periodontal pocket with a probing depth of 8mm.

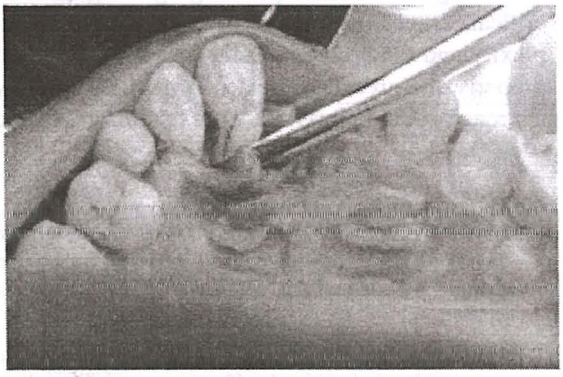


Figure 4 : Mucoperiosteal flap raised to expose the defect.

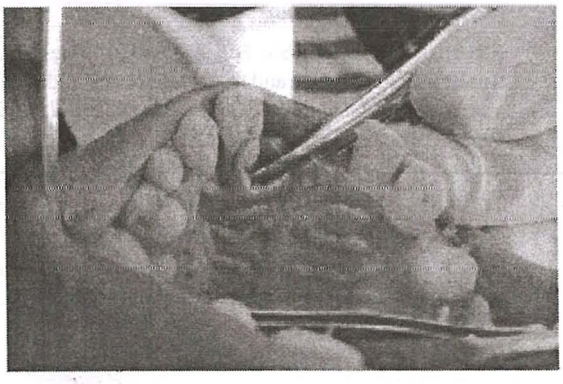


Figure 5 : Radiculoplasty done to remove the groove.

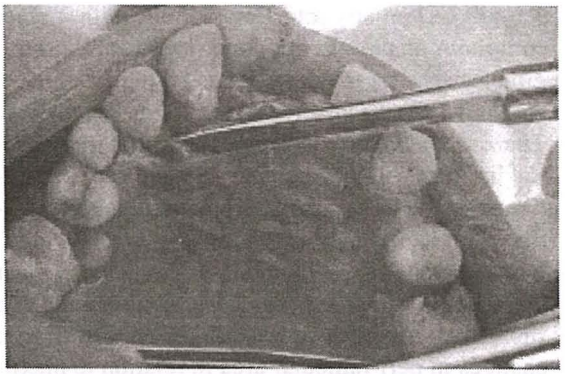


Figure 6 : Restoring the defect with GIC.

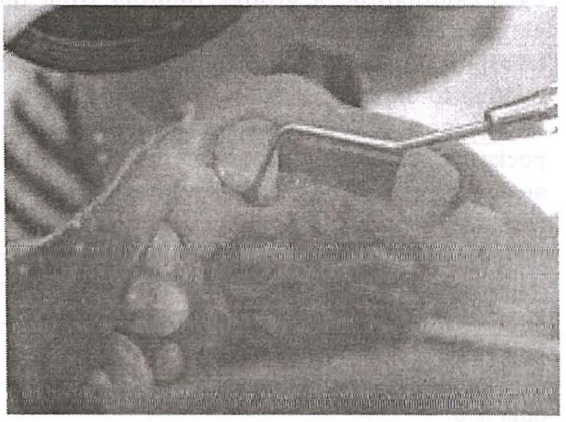


Figure 7 : Reduced probing depth.



Figure 8 : Post operative radiograph.

servative Dentistry and Endodontics with a chief complaint of pain in the upper left front tooth region for the last ten days. On examination, maxillary left lateral incisor was tender on percussion. There was a history of trauma to the maxillary central incisors and the centrals were avulsed. The patient provided a history of dental treatment to maxillary left lateral incisor around eight months back. However, pain was noticed in the lateral incisor ten days back. Intra oral periapical radiograph showed an over extended gutta percha filling with changes in peri-radicular area in relation to maxillary left lateral incisor (Figure 1). On further clinical examination, a groove running from the cingulum towards the root was found on the palatal aspect (Figure 2). A deep periodontal pocket in relation to the palatal aspect of the maxillary left lateral incisor was also noted. The periodontal pocket with a probing depth of 8 mm was associated with a groove on the palatal surface of the root (Figure 3). So a diagnosis of failed endodontic therapy and perio-endo lesion secondary to palatal radicular groove was made. A treatment plan involving re-endodontic therapy and periodontal flap surgery with sealing of the groove was taken, explained to the patient and informed consent was obtained.

The tooth was isolated with rubber dam prior to access preparation. Cleaning and shaping of the canal was done after removing previous root canal filling of gutta percha. Step back technique was used for root canal preparation and the canal was obturated by lateral condensation of gutta percha with zinc oxide eugenol as sealer. After obturation, mucoperiosteal flaps were elevated on both labial and palatal aspects to allow degranulation of the lesion. A palatal radicular groove running up to the middle of the root was noted (Figure 4). Radiculoplasty was undertaken using a round bur after which the groove was conditioned with polyacrylic acid and sealed with glass ionomer cement (Fuji II; GC Corporation, Tokyo, Japan) (Figure 5, Figure 6). Flaps were replaced and sutured. A non-steroidal anti-inflammatory drug, Ibuprofen 400 mg (twice daily for three days) was given postoperatively for its analgesic and anti-inflammatory properties. Healing was uneventful and sutures were removed after one week. At three months recall, tooth was asymptomatic & probing depth was 3 mm, a reduction of five mm in probing depth (Figure 7). Periapical radiograph showed continued healing at the periapex (Figure 8).

Summary

Recognition of the palato-gingival groove is critical, especially because of its diagnostic complexity and the problems that may arise if it is not properly interpreted and treated. A multidisciplinary approach should always be considered for treating such cases.

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