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MANAGEMENT OF PALATOGINGIVAL GROOVE - CASE SERIES

Dental Science

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ABSTRACT

The region of maxillary lateral incisor is an area of embryological importance with developmental malformations such as gemination, fusion, cysts, dens in dente, peg laterals, talon cusps, supernumerary roots and palatogingival groove. Palatogingival groove is a developmental groove in a root and is usually found on the palatal aspect of maxillary incisor teeth. It is commonly associated with periodontal defects and subsequently leads to perio-endo lesions. Here in this case series we are going to discuss about the cases with palatogingival groove and its management.

KEYWORDS

Palatogingival groove, Developmental malformations, Glass ionomer cement.

INTRODUCTION:

Maxillary lateral incisor region is an area of embryological importance. Developmental abnormalities such as gemination, fusion, cysts, dens in dente, peg laterals, talon cusps, supernumerary roots and palatogingival groove are common in this area.[1] The palatogingival groove is a linear depression or a groove which commences at the junction of the cingulum with one of the lateral marginal ridges and continues apically to the proximal surface of the root, possibly reaching the apex.[2] Palatogingival groove is a plaque retentive factor and had been associated with the development of localized periodontitis, which may finally leads to perio-endo lesions.[3] Grooves had been classified into mild, moderate and complex grooves based on its complexity.[4] Management of mild groove is simple but the management of moderate and complex groove requires comprehensive care. Here in our case series, we are going to discuss about the cases with moderate palatogingival groove that was successfully managed with open flap debridement and obliteration of groove with glass ionomer cement.

Case report I:

37 year old male reported to department of periodontics complaining of mild sensitivity in the right front tooth region. On clinical examination, generalised mild (1-2mm) to moderate (3-4 mm) attachment loss was found. On performing conventional probing, there was an isolated pocket of 9 mm in depth on the distal aspect of tooth # 7. IOPA revealed advanced bone loss in relation to distal aspect of tooth # 7. (Fig 1 and 1A). It was observed that the pocket was in line with a Palatogingival groove on the distal aspect of tooth # 7. Vitality response was positive in tooth # 7. Diagnosis of Generalized Chronic Periodontitis was made. Overall prognosis was established as good. Prognosis of tooth # 7 was established as fair. Scaling and root planing followed by obliteration of groove was planned. Patient underwent full mouth scaling and root planing on two subsequent visits in all quadrants including tooth # 7. After phase I therapy, the pocket depth in distal aspect of tooth # 7 reduced to eight millimeters. Patient referred to department of endodontics for intentional root canal therapy. After root canal therapy, open flap debridement was done. Moderate palatogingival groove was exposed (Fig 2). Obliteration of groove with glass ionomer cement was done (Fig 2A). Horizontal bony defect was present; therefore no regenerative procedure was performed. Flap was approximated with 4-0 silk sutures. Patient recalled after one week for suture removal. Healing was uneventful. After six months follow up, the pocket depth was reduced to 3 mm and the tooth was asymptomatic (Fig 3 and 3A).

Case report II:

45 year old male reported to department of periodontics complaining of mild sensitivity in the right front tooth region. On performing conventional probing, there was an isolated pocket of 10 mm in depth on the distal aspect of tooth # 7. It was observed that the pocket was in line with a Palatogingival groove on the palatal aspect of tooth # 7. IOPA revealed advanced bone loss in relation to mesial aspect of tooth # 7 (Fig 4 and 4A). Vitality response was positive in tooth # 7. Diagnosis of Chronic generalised marginal gingivitis with localised Chronic Periodontitis in relation to tooth # 7 was made. Overall prognosis was established as good. Prognosis of tooth # 7 was established as fair. Scaling and root planing followed by obliteration of groove was planned. Patient underwent full mouth scaling and root planing on two subsequent visits in all quadrants including tooth # 7. Patient underwent scaling and root planing on tooth # 7. After phase I therapy, the pocket depth in distal aspect of tooth # 7 reduced to seven millimeters. Patient referred to department of endodontics for intentional root canal therapy. After root canal therapy, open flap debridement was done and moderate palatogingival groove was exposed (Fig 5). Saucerisation of groove was done (Fig 5A). Horizontal bony defect was present; therefore no regenerative procedure was performed. Flap was approximated with 4-0 silk sutures. Patient recalled after one week for suture removal. Healing was uneventful. After six months follow up, the pocket depth was reduced to 3 mm and tooth was asymptomatic. (Fig 6 and 6A)

DISCUSSION:

The palatogingival groove is a rare developmental anomaly. It is common on the palatal surface of the maxillary lateral incisors.[5]The prevalence rate is 2.8%-8.5% with a predisposition for Chinese population.[6]

Kogon 1986 reported that 58% of Palatogingival grooves extend more than 5 mm apical to the CEJ.[7] Deep radicular grooves can pre-dispose the tooth to primary periodontal and secondary endodontic lesions. According to Gao et al, bacterial access to pulp space very likely to occur through accessory canals connecting the pulp in the depth of the groove.[8] Odontoplasty and sealing of groove may leads to stressed pulp condition, which happens in pulp that have received repeated previous injury and survived with diminished responses and lessened reparative potentials.[9] In above cases we had treated the tooth with moderate complex grooves, both periodontally as well as endodontically. We had done intentional root canal treatment in both cases, to avoid endodontic complications such as stressed pulp condition and pulp necrosis which can arise after saucerisation and restorative procedures.

Reasons why we had chosen glass ionomer cement for sealing groove are as follows-

1) good epithelium and connective tissue adherence to GIC during healing process.[10]
2) easy availability, and manipulation.

We hadn't performed any regenerative procedure because the defect was a noncontained horizontal defect.

CONCLUSION:

Presence of a Palatogingival groove does not always imply that pathology will develop. The groove may continue to exist undetected unless there is a breach in the epithelial attachment due to plaque retention. Therefore elimination of groove should be given utmost importance. Thorough clinical examination of the palatal surface of incisors should be encouraged as a part of the routine protocol.

Fig 1:

Fig 1A:

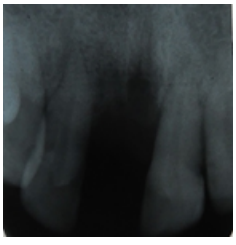

Fig 2:

Fig 2A:

Fig 3:

Fig 3A:

Fig 4:

Fig 4A:

Fig 5:

Fig 5A:

Fig 6:

Fig 6A:

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