Gingival Fenestration Management: A Rarefied Case Entity and Literature Review

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Dehiscence and fenestration are commonly confronted alveolar defects. But the combined mucosal and alveolar fenestration is uncommonly reported in the literature as they less often cause pain, and in majority of the cases, only aesthetic complaint is present. This article highlights the case report of a 28-year-old female patient who presented with aesthetic concern about gingival/mucosal fenestration in her right lower central incisor. She had a history of surgical endodontic treatment in the same tooth. In this case, mucosal fenestration was treated with regenerative therapy using bioactive glass with platelet-rich fibrin and free connective tissue graft. The treatment resulted in excellent aesthetic outcome and satisfactory bone healing.

Keywords: Bone graft, connective tissue graft “fenestration labyrinth”, endodontic treatment, fenestration

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How to cite this article: Rajula M. PB, Varatharajan K, Mani R, Krishnakumar S. Gingival fenestration management: A rarefied case entity and literature review. J Pharm Bioall Sci 2020;12:S648-51.
Surgical Procedure

After obtaining informed consent from the patient, the surgical site was anesthetized and a full-thickness flap was elevated from 32 to 42 region, and the alveolar defect was exposed [Figure 2]. The bony defect was thoroughly debrided, and the alveolar defect was packed with bioactive glass (BG) (Perioglas®, Novabone Products Pvt. Ltd., Bangalore, India) mixed with PRF, and the flap was repositioned in the original position and secured with 3-0 black silk sutures.

Later, CTG was obtained from the palate through a single incision technique and placed over the mucosal defect and secured with 5-0 catgut suture, and periodontal dressing was given. Antibiotics and analgesics were prescribed, and a rinse of 0.12% chlorhexidine was advised for approximately 2 weeks. Postoperative healing was uneventful, and the sutures were removed after 10 days. The 1-month postoperative follow-up revealed favorable healing [Figure 3]. One-year follow-up showed aesthetically healed mucosal fenestration [Figure 3], and the periapical radiograph revealed resolution of the periapical defect [Figure 3].

Discussion

Gingival fenestrations have been portrayed in the literature but are unusual in comparison with the normal fenestration. It was first described by Menéndez OR in 1967.[9] The term “gingivo-osseous pathologic fenestration” was coined by Serrano,[8] in 1971, to describe this condition. The literature review revealed most commonly involved are deciduous teeth affected by traumatic intrusion, disrupted root resorption, and so on. Regarding permanent teeth, the most commonly involved teeth are incisors. It has multifactorial etiology such as thin alveolar housing, labially positioned teeth, contour at the root apex, occlusal discrepancies, orthodontic tooth movement, and endodontic and periodontal pathosis.

Although the presence of non-vital teeth has been implicated in alveolar and mucosal fenestration as identified in the aforementioned case scenario, Jhaveri et al.[7] reported the same on the distobuccal root of a vital maxillary first molar tooth. In case of non-vital tooth, the already existing defect or the one caused by bone resorption due to disease process caused alveolar fenestration to extend mucosal fenestration by denudation of mucosal covering of root.

The treatment should be decided based on the degree of osseous defect and protrusion at the root apex. Literature review suggests for root surface coverage by the subepithelial CTGs to manage the mucosal defects. Uchida et al.[8] managed a case of mucosal fenestration with GTR and obtained complete coverage.

In this case, we used BG along with PRF to fill the periapical defect, followed by CTG for covering the mucosal fenestration, thereby treating both the alveolar and mucosal fenestration in a single stage. BG is a kind of bioactive ceramic that has an osteostimulatory effect in addition to its osteoconductive properties.[9] It has also shown to have antibacterial effect against subgingival and supragingival bacteria.[9] The selection of CTGs is dependent on connective tissue base establishment, which helps the epithelial cells to migrate from the margins, thus rendering “reattachment” of the soft tissue onto the exposed root surface.[7] This case report is among the first few to use both BG with PRF and free connective graft in the combined fenestration coverage.

Conclusion

Gingival fenestrations are rarely encountered with clinical practice, but when present, they pose a difficult situation for the clinician. Although infrequent, the presence of a denuded root surface penetrating the cortical plate and the overlying mucosa is not just an aesthetic concern for the patients but also pose further challenges of bringing about a poor prognosis.
In spite of various treatment techniques that have been documented for the management of mucosal fenestrations, the surgical protocol that we have followed in this case has yielded aesthetic and satisfactory results.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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