Endodontic and Surgical Management of Mucosal Fenestration

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Abstract: Mucosal fenestrations are defects of alveolar cortical plate which are infrequently encountered in clinical practice. A 19 years old female reported with chief complaint of pain localized in the maxillary left molar region. The patient presented with no relevant medical history and upon interrogation said that the pain was dull and continuous and aggravates on mastication. Extra oral examination did not reveal the presence of any anomalies or of muscular sensitivity to palpation. Intra oral examination revealed presence of fenestration in relation to apex of mesio buccal root of 16. On radio graphic examination there was visible resorbtion and periapical radiolucency in relation with palatal root of maxillary left first molar. Endodontic therapy was performed and surgical management of the defect was done by elevating full-thickness flap, root-end resection and root-end filling with MTA. A small zone of fibrous tissue in the mucosa facing the fenestration was eliminated, and the flap was repositioned and sutured. Periodic follow up was done. [Rawtiya M Natl J Integr Res Med, 2019; 10(5):97-99]

Key Words: Fenestration, mineral trioxide aggregate, root resection, surgical

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Introduction: Alveolar fenestrations are defects of the alveolar cortical plates which are usually encountered during mucogingival surgery or oral surgery and endodontic procedures when a surgical flap is raised. [1] They may complicate surgical procedures or require changes in implant placement protocols. These fenestrations are considered as non-pathological conditions, and a variation within the range of periodontal normalcy.[2]

It is usually described as a circumscribed defect of the alveolar radicular bone exposing the underlying root surface but not involving the alveolar margin.[3] **Carranza et al. (2002),** defined a fenestration as an isolated area in which the root is denuded of bone and the root surface is covered only by periosteum and overlying gingiva.[4] Stahl et al. classified fenestrations from 1-3 where 1 represented the smallest opening seen with the represented buccal vertical loss extending into the alveolar crest. This lesion is a denuded area of bone, exposing the root surface and is usually found about 2mm below the crest on the buccal surface.[5]**.**

They do not offer too many clinical therapeutic complications, because they are not associated with periodontal pathosis due to bone being occlusally or incisally to the alveolar fenestrations. The maxillary left first molar and the mandibular cuspids had the highest incidence of defects and usually it is bilateral. [6] It is more frequently in the labial alveolar plate of the anterior teeth than in the posterior teeth. Stahl et al. observed an increased incidence of fenestration in jaws exhibiting occlusal wear which was taken to represent excessive occlusal forces.[5]

Developmental abnormalities, frenum attachments, orthodontics tooth alignment, periodontal and endodontic pathosis, trauma from occlusion, tooth size, and tooth position are different preliminary factors for causing fenestration.[5] This case represents endodontic and surgical management of mucosal fenestration in relation to maxillary left first molar.

Case Report: A 19 years old female reported to the Department of Conservative Dentistry & Endodontics with the chief complaint of pain localized in 16. The patient presented with no relevant medical history and upon interrogation said that the pain is dull and aggravate on mastication. Extra oral examination did not reveal the presence of any anomalies or of muscular sensitivity to palpation. Intra oral examination revealed presence of fenestration in relation to upper left maxillary first molar with apex of mesio buccal root clearly visible.(Figure-1 & 2)
Radio graphic evaluation revealed resorbtion in relation with palatal root and periapical radiolucency. Pulp vitality test revealed negative response. Conventional root canal therapy was performed. After administration of local anesthesia and rubber dam isolation, access cavity preparation was done and the working length was determined using #15 K file after establishing glide path which was confirmed using apex locator (Root ZX; Morita, Japan). The

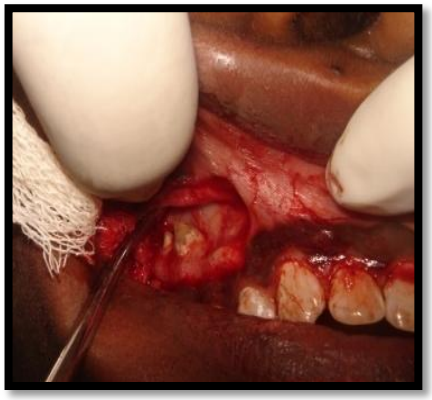
canals were prepared using Protaper file system (Dentsply) under copious irrigation and obturation was performed and cavity was sealed with amalgam. (Figure- 3, 4 & 5)

Figure – 1 & 2 - Mucosal fenestration in relation to mesiobuccal root of 16

Figure- 3, 4 & 5 – root canal obturation in relation to 16

Patient was recalled for surgical intervention. Under local anesthesia, full-thickness flap was elevated; root-end resection was performed and root-end filling with MTA was done. (Figure-6)

Figure- 6- Mesio- buccal root resection of 16 after muco-periosteal flap reflection



A small zone of fibrous tissue in the mucosa facing the fenestration was eliminated, and the flap was repositioned to close the mucosal defect and sutured. (Figure-7). Patient was prescribed analgesics and antibiotics. In the follow up visit after 7 days, patient was asymptomatic; sutures were removed. Periodic follow up after 6 months and one year was performed. (Figure- 8)

Figure- 7- Suture placed after surgery

Figure –8- follow- up after six month

Patient was prescribed analgesics and antibiotics. In the follow up visit after 7 days, patient was asymptomatic; sutures were removed. Periodic follow up after 6 months and one year was performed. (Figure- 8)

Discussion : Osseous coverage of dental roots may either have localized defects (fenestrations) or extensive defects (dehiscences).The frequency of these defects is 7.5% to 20% according to various studies and varies according to the type of tooth considered. [8] Most commonly they are seen on the mesiobuccal root of the maxillary first molar and maxillary canine. [9]

Mucosal fenestrations are rare finding in clinical practice, and as such, their management has not been reported very frequently. Communication of the fenestration with the oral environment, make them more susceptible to plaque and calculus deposits which prevent reformation of mucosal covering. Moreover a connective tissue overlies the osseous lesion and is firmly attached to the root surface by periosteal fibers.

For persistent discomfort in type teeth should be decided based on the extent of root protrusion. If it is small (Type V-1and 2) apical root end should be exposed surgically and trimmed back to within the surrounding tissue. In this case similar approach was taken and the root ends were resected and sealed MTA. MTA has been known for its regenerative potential and excellent apical sealing ability. [10] The fibrous tissue facing the flap was eliminated and flap was sutured back which resulted in closure of the defect.

It may be concluded that root end resection and retrograde filling followed by closure of the defect can be an alternative to GTR membrane for the closure of fenestration defect.

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