

A) **Type of manuscript** - Case Report

B) **The title of the article**- CONSERVATIVE MANAGEMENT OF A RARE PRESENTATION OF MUCOSAL FENESTRATION IN A FOUR YEAR OLD CHILD: A CASE REPORT

C) **Running title**- CONSERVATIVE MANAGEMENT OF A RARE PRESENTATION OF MUCOSAL FENESTRATION IN A FOUR YEAR OLD CHILD: A CASE REPORT

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Abstract

Background: Mucosal fenestration refers to a window like defect in the alveolar bone where the root of a tooth is denuded of its bony covering. Various causes ranging from trauma, chronic periapical or periodontal inflammation can produce such defects. This condition usually manifests either in adolescents or in extreme age group patients

Case Report: The present case report is of a four year old boy who showed the presence of mucosal fenestration in the anterior maxillary gingivae and treated in a conservative and least invasive manner.

Conclusion: Mucosal fenestration in the primary dentition phase can be treated in a conservative manner as opposed to any invasive treatment approaches, likely to instill fear or anxiety in a pediatric patient.

Keywords: fenestration; alveolar bone; defect

INTRODUCTION:

The term fenestration comes from the latin word 'fenestra' meaning window¹. Periodontal literature finds the usage of this term in describing areas in the alveolar process devoid of bone, creating a window revealing the underlying root surface¹. The term gingival or mucosal fenestration is used in situations where alongwith a part

of the alveolar bone, the overlying gingiva or alveolar mucosa is also denuded, exposing the root apex². Menendez in 1967 described mucosal fenestration for the first time as ‘bone fenestration by roots of deciduous teeth’². In 1976, Kelly et al. applied the term ‘apical fenestration’². Mucosal fenestration can be attributed to various causes like tooth malpositioning, prominent morphology of root apex, thin or deficient alveolar bone, severe chronic periapical inflammation leading to destruction of bone. The most common location of mucosal fenestration, as concluded from various studies, is the region of anterior teeth specially on the labial aspect of tooth angulation where the root apices are placed in a labial direction³⁻⁵. Usually these cases are asymptomatic but may act as plaque-retentive areas leading to inflammation of adjacent mucosa⁶. Sensitivity and/or pain is rarely present in the affected tooth although it may sometimes occur on mastication or palpation². The current case report describes the conservative treatment modality undertaken in a four year old child who presented with mucosal fenestration in the maxillary anterior labial gingivae.

CASE HISTORY:

A four year old child reported to the Department of Pedodontics and Preventive Dentistry with the chief complaint of injury to the inside of the upper lip due to some hard projections on the upper gum. Extraoral examination revealed no abnormalities. Intraoral examination revealed presence of multiple grossly carious deciduous teeth with rootstumps of the maxillary primary incisors. Mucosal fenestration exposing the root apices of the primary maxillary central incisors was observed (Fig. 1). Intraoral periapical radiograph revealed only the presence of crowns of the primary upper central incisors (Fig. 2). Initially extraction of the central incisors was advised but the parents were against it. Also the child’s behavior was negative (Frankl behavior rating scale). Hence a conservative treatment plan was devised. The outline of the treatment is as follows.

- Topical anaesthetic gel (Benzocaine 2%) was applied on the mucosa surrounding the exposed root apices of the maxillary primary central incisors followed by labial infiltration anesthesia with 2% lidocaine (Xylocaine).

- A flame shaped diamond coated bur was inserted in a high-speed airtor hand piece.
- The bur was oriented parallel to the longitudinal axis of the root apices and was used to grind the apices completely (Fig. 3).
- All the visible granulation tissues were enucleated.
- Pressure pack was placed and primary haemostasis was achieved.
- Analgesics and antibiotics were prescribed.

At the end of one year follow up, the previously fenestrated areas showed complete healing and resolution. (Fig. 5)

DISCUSSION:

Fenestration of root apex, resulting from pulpal-periradicular diseases is a rare phenomenon⁴⁻⁷. The foremost step towards devising a treatment plan for mucosal fenestration is to identify the underlying etiology². In primary teeth, fenestration can be a cause of trauma to the deciduous tooth in which its apex is found to perforate the labial alveolar plate and overlying gingival tissue⁸. Another cause can be the prolonged retention of primary teeth beyond its exfoliation time⁸. This is because the eruption of the permanent successor may cause resorption of the labial bone leading

to fenestration, thus exposing the apex of the primary tooth⁸. The treatment usually undertaken for fenestration in primary teeth is extraction². For permanent teeth, alternative management methods comprises of root canal treatment followed by root-end resection and retrograde filling with suitable restorative materials². Other than that, raising of full thickness flap followed by guided tissue regeneration and bone grafting can be done². Pedicle flap operations are another alternative². Thorough root planning should also be a part of this surgeries². Regular maintenance of oral hygiene by daily brushing and flossing and if necessary rinsing with chlorhexidine mouthrinses are essential for the success of flap surgeries⁹.

Cases of mucosal fenestration at an early age of four years have rarely been documented in literature. Also conservative management methods regarding such clinical presentations are very scarce to be found in scientific dental articles. In uncooperative pediatric patients, like in this scenario, simple grinding and resection of exposed root apices can serve as an efficient non-invasive management technique to relieve the fenestrated areas. Subsequently any traumatic lesions resulting from such

fenestrated defects can be managed in an effectual competent manner.

CONCLUSION:

Non-invasive dental procedures are best suited in the field of pediatric dentistry. Soft tissue trauma resulting from sharp exposed root apices of primary teeth due to fenestration can be alleviated through resection of the apices by diamond burs in high speed handpiece without raising any surgical flaps. Thus in this way, it not only produces good clinical outcomes but also creates a sense of satisfaction in the minds of the clinician and the parents.

REFERENCES:

- 1.Lane J J. Gingival fenestration. J Periodontol. 1977;48:225-227.
- 2.Abhinav, Chaubey K K,Agarwal S, Agarwal M. Multidisciplinary management of a mucosal fenestration. Indian Journal of Oral Sciences. 2014;5:44-46.
- 3.Rawlinson A. Treatment of a labial fenestration of a lower incisor tooth apex. Br Dent J. 1984;156:448-9.
- 4.Lin L J. The treatment of fenestrated root. Case Reports. J Dent Sci. 1989;9:137-40.
- 5.Ju Y R, Tsai A H, Wu Y J, Pan W L. Surgical intervention of mucosal fenestration in a maxillary premolar. A Case Report. Quintessence Int. 2004;35: 125-8.
- 6.Dawes W L, Barnes I E. The surgical treatment of fenestrated buccal roots of an upper molar. A case report. Int Endo J. 1983;16:82-6.
7. Priyavadhana Prabhu, MN Prabhu, Wound Healing in Periodontics”, BIOSCIENCES BIOTECHNOLOGY RESEARCH ASIA, August 2014. Vol. 11(2), 791-796
- 8.Edney B M. Interesting presentation of a retained upper deciduous incisor with apical fenestration. British Dental Journal. 2000;188:369-370.
9. J.Sabarinathan, MN Prabhu. Prevalence of Gingival recession among the different races of patients reporting to Penang International Dental College" Spectrum Journal of Dental Sciences, special issue of International Journal of Dental Sciences and Research, 2014, 2(4 A),1-3.

FIGURES:



Fig 1: Fenestration exposing root apices of grossly carious primary maxillary central incisors



Fig 3: Grinding and resecting the root apices



Fig 2: Intraoral periapical radiograph showing absence of roots of the primary maxillary central incisors



Fig 4: Immediate post-operative photograph



Fig 5: Followup after 1 year showing complete healing of the areas