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Aberrant Maxillary and Mandibular Buccal Frenum Causing Hypersensitivity in Adolescent and its Management: A Rare Case Report

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Abstract

Frenum is a mucous membrane fold consisting of mucosa, connective tissue fibers and muscle fibers which attaches the cheek and lips to alveolar mucosa. Aberrant frenum is of great clinical significance as it may cause problems like gingival recession which may be due to muscle pull or inadequate plaque control measures. Gingival recession may lead to dentinal hypersensitivity and increases the risk of root caries. Frenal attachments have been classified according to the position of attachment of frenum. Various frenectomy and frenotomy techniques have been used for the management of aberrant frenum. Aberrant labial or lingual frenum has been more frequently reported as compared to aberrant buccal frenum. The present case reports management of abberant buccal frenum in all the four quadrants causing gingival recession and dentinal hypersensitivity.

Keywords: Frenum; Hypersensitivity; Adolescent

Introduction

A frenum is a fibrous band of connective tissue covered by mucosa extending from buccal mucosa to alveolar periosteum [1]. An abberant frenum causes functional or esthetic problems. It may cause gingival recession when they are attached close to gingival margin due to opening of gingival crevice because of muscle pull [2]. Gingival recession leads to increased risk of root caries, poor esthetics and dentinal hypersensitivity [3]. Paleck Mirko et al (1974) calssified the frenal attachment based on the position of attachment of frenum as:

Mucosal: Frenum is attached to mucogingival junction

Gingival: Frenum is attached to attached gingiva

Papillary: Frenum is attached to papilla

Papilla penetrating: Frenum is attached right upto papilla while inserting in attached gingiva [4].

Management of aberrant frenum is through Frenotomy or Frenectomy. Frenotomy is partial removal of frenum through incision and relocation of frenal attachment while frenectomy is complete removal of frenum [4].

Various techniques have been used for frenotomy and frenectomy procedures. It includes simple excision technique, Z plasty technique, Localized vestibuloplasty with secondary epithelization and laser assisted frencetomy. In case of narrow mucosal and fibrous tissue band, simple excision and Z plasty technique is effective [5].

In the present case simple excision technique was used for the frenectomy of bilateral buccal frenum in both the maxillary and mandibular jaw. It involves a narrow elliptical incision around the frenal area. The excised tissue is removed, margins of the wound are undermined and reapproximated. This technique reduces hematoma formation and allows for tissue adaptation at the maximum height of vestibule [5].

Case Description

A systemically healthy 13 years old female reported to the Unit of Pedodontics with the chief complaint of sensitivity in maxillary and mandibular canine - premolar region bilaterally. There was aberrant buccal frenum attachment in both maxillary and mandibular jaw bilaterally leading to gingival recession and sensitivity (Figure 1, 2). There was no bleeding on probing during clinical examination and pocket depth was found to be of 1-2mm with respect to mandibular canine and maxillary first premolar bilaterally. Gingival recession of 3-4 mm was found in relation to maxillary first premolar and mandibular canine bilaterally. To reduce the mucogingival stress cause by high buccal frenum and to prevent further gingival recession, frenectomy was planned in all the four quadrants. Thorough medical and family history was taken and blood investigations were performed which ruled out any contraindication to the surgery. Surgical procedure was thoroughly explained to the patient and her parents and informed consent was taken.

Patient was asked to rinse the mouth with 0.12% Chlorhexidine mouthwash for 1 minute. Local anesthesia (2% Lignocaine with 1:200000 adrenaline) was administered to the patient using local infiltration technique. Frenal attachment area was exposed and gripped with hemostat. Excision of the tissue was done with number 15 BP blade along the margins of the frenum. Triangular resected portion of frenum was removed and underlying tissue was exposed (Figure 3). Undermining of the tissue was done after the excision to increase the mobility of the flap and to prevent the distortion of underlying tissue. Hemostasis was achieved and sutures were placed through the mucosal margins which closes the mucosal margins at the depth of the vestibule. Periodontal dressing pack was given and antibiotic and analgesic were prescribed. Patient was recalled after 7 days for suture and periodontal dressing removal. There was satisfactory healing after 7 days. Patient was followed up for a period of 6 months and there was satisfactory healing at the end of 6 months. There was a decrease in gingival recession from 3-5 mm to 2-3 mm and there was no complaint of dentinal hypersensitivity (Figure 4, 5).

Figure 1: High buccal frenal attachment leading to gingival recession in maxillary first premolar region bilaterally.

Figure 2: High buccal frenal attachment leading to gingival recession in mandibular canine region bilaterally.

Figure 3: Frenectomy of maxillary and mandibular buccal frenum using simple excision technique.

Figure 4: Six months follow up showing satisfactory healing and decrease in gingival recession in relation to maxillary buccal frenum bilaterally.

Figure 5: Six months follow up showing satisfactory healing and decrease in gingival recession in relation to mandibular buccal frenum bilaterally.

Discussion

Etiology of aberrant buccal frenum includes genetic factors or localized environmental factors including gingival recession reaching up to buccal frenum attachment [2]. An aberrant frenum may cause significant functional problems as the tension from the lips may cause pulling of gingival margin away from the tooth leading to gingival recession and dentinal hypersensitivity [6]. Aberrant labial frenum and lingual is more commonly reported as compared to aberrant buccal frenum [2]. In the present case bilateral buccal frenal attachment in both maxilla and mandible were tested positive for tension test and were diagnosed to be the cause of gingival recession leading to hypersensitivity of dentin. To prevent the further recession of gingiva which would further aggravate the dentinal hypersensitivity and predispose to root caries, frenectomy of all the four buccal frenum in maxilla and mandible was planned [7].

Various frenectomy procedure has been introduced so far, simple excision technique, Z plasty technique, Laser assisted frenectomy. Simple excision technique has advantage of adaptation of the tissue at the maximum height of vestibule. Laser and electrocautery provide a bloodless surgical field and is more useful in patients having bleeding disorder [6]. Lasers however has the disadvantage of being expensive procedure and cannot be used in cases of frenum having broad base as it will require increased post operative healing period [8]. On the basis of type of frenal attachment, surgical technique should be selected which leads to the proper functional and esthetic outcome [9]. In the present case simple excision technique was used as it is a simple cost effective procedure with good post operative outcome.

Patient was recalled after one week for removal of suture. Healing was found to be satisfactory. Patient was further followed up for a period of six months. There was resolution of symptom of dentinal hypersensitivity and no relapse was noted.

Conclusion

It's rare to find high buccal frenum leading to gingival recession in all the four quadrants of oral cavity in a pediatric patient. However when it is found, it is important to treat it as early as possible, not only to prevent the progression of the disease and to alleviate the symptoms but also to achieve an adequate gingival coverage over the root of the teeth in young pediatric patients. Appropriate frenectomy technique should be utilized depending upon the type of frenal attachment. Simple excision technique utilized in the present case to achieve the desirable result and complete patient satisfaction. At the end of three months follow up period there was decrease in gingival recession by 1-2mm and healing was uneventful. Patient reported no dentinal hypersensitivity after three months of post operative period. Further gingival recession was prevented after frenectomy which facilitated the maintenance of oral hygiene.

Author's contribution

Dr. Vinay Kumar Srivastava: Conceived the idea, treatment and management of patient, final approval of the manuscript

Dr. Aman Kumar: Treatment and management of patient, writing of the manuscript

Dr. Meenakshi Chandel: Management of patient

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