

Early Diagnosis and Surgical Treatment of the Lower Labial Frenum in Infancy: A Case Report

Anna Carolina Volpi Mello-Moura*/ Isabela Capparelli Cadioli**/ Maria Salete Narras Pires Corrêa ***/ Célia Regina Martins Delgado Rodrigues ****/ Ricardo De Nardi Fonoff *****

The lower labial frenum attached to the free gingival margin can promote local tension, resulting in tissue ischemia, promoting the development of gingival recession, as well as complicating oral hygiene, resulting in a local biofilm accumulation and chronic inflammation. In such cases, periodontal surgery is recommended and the local anatomic characteristics will be improved as early as school age. In this case report, a 7 years old patient had the lower labial frenum repositioned. After this procedure, the suture of the mucosa to the periosteum was performed around the surgical wound to provide local healing by secondary intention. This case report suggests that early diagnosis and surgical treatment of the lower labial frenum in school age children is fundamental in eliminating etiological factors, reestablishing normal anatomic characteristics and preventing periodontal diseases.

Keywords: frenotomy, lower labial frenum, mixed dentition.

J Clin Pediatr Dent 32(3): 181–184, 2008

INTRODUCTION

In the eruption phase of the mandibular permanent incisors, one must pay attention to the gingival tissue resulting from this process. Characteristics like frenum attachment, tooth position in the arch and the presence of attached gingiva must be controlled because of possible mucogingival problems.

When the lower labial frenum attachment is inserted in

the free gingival margin,¹ over time, it can promote local alterations. This frenum promotes constant tension in the free gingival margin and in the attached gingiva, causing tissue ischemia and gingival recession.¹⁻⁴ It can also make oral hygiene difficult resulting in local biofilm accumulation and chronic inflammation, worsening the recession.²⁻⁵

In these cases, periodontal surgery is recommended, to prevent or correct anatomic, developmental, traumatic or disease induced defects of the gingiva, alveolar mucosa or bone.⁶ The removal of the frenum is one of these procedures.⁶

Fowler and Breault⁷ reported a case of a 25 year old patient with gingival recession caused by a prominent lower labial frenum. Periodontal surgery was recommended to remove the etiologic factor. A subsequent corrective procedure consisting of a soft tissue graft was planned as a follow-up surgery post frenectomy. However, the frenectomy was sufficient, promoting a 1mm gain in coronal reattachment.

In this case report, the periodontal surgery in the area of the lower frenum was planned in a patient with mixed dentition to eliminate the etiologic factors, improve the anatomic characteristics and prevent gingival defects.

CASE REPORT

A 7 years old boy patient in the mixed dentition presented with a chief complaint of difficulty in cleaning the teeth in the area of the lower permanent incisors. The Intra-oral exam of the lower incisor region, revealed that the lower labial frenum was attached to the free gingival margin (Figure 1), promoting tension in the area and complicating the local hygiene. There was minimal attached gingiva, gingival recession without exposure of the cemento-enamel junction

* Anna Carolina Volpi Mello-Moura, DDS, MSc student, Department of Orthodontics and Pediatric Dentistry - Faculty of Dentistry - University of São Paulo, SP, Brazil

** Isabela Capparelli Cadioli, DDS, MSc student, Department of Orthodontics and Pediatric Dentistry - Faculty of Dentistry - University of São Paulo, SP, Brazil

*** Maria Salete Narras Pires Corrêa, DDS, MSc, PhD, Professor, Department of Orthodontics and Pediatric Dentistry - Faculty of Dentistry - University of São Paulo, SP, Brazil

**** Célia Regina Martins Delgado Rodrigues, DDS, MSc, PhD, Associated Professor, Department of Orthodontics and Pediatric Dentistry - Faculty of Dentistry - University of São Paulo, SP, Brazil

***** Ricardo De Nardi Fonoff, DDS, MSc, PhD, Professor, Department of Orthodontics and Pediatric Dentistry - Faculty of Dentistry - University of São Paulo, SP, Brazil

Send all correspondence to: Anna Carolina Volpi Mello-Moura, Departamento de Ortodontia e Odontopediatria, da Faculdade de Odontologia da Universidade de São Paulo, Av. Prof. Lineu Prestes, 2227, CEP 05508-900

São Paulo, SP, Brasil.

Phone: +55-11-3091-7835. Fax: +55-11-3091-7854.

e-mail: acvmello@usp.br



Figure 1. Intra-oral exam of the lower labial frenum region

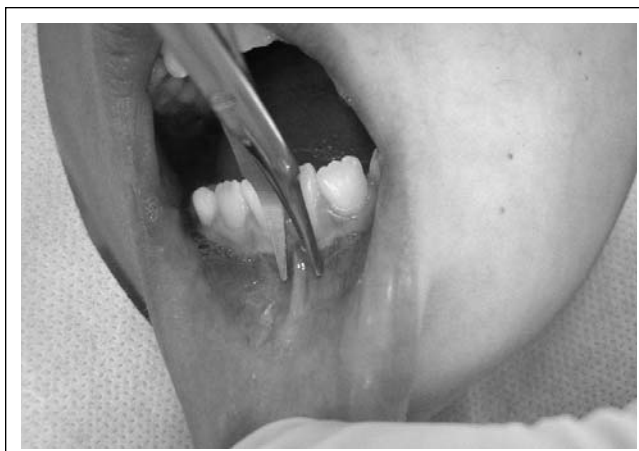


Figure 2. Primary incision: tissue scissor positioned parallel to the alveolar bone



Figure 3. Suture of silk 5.0 around surgical wound



Figure 4. 2 years postsurgical view

and chronic gingival inflammation in the left lower permanent incisor area.

Consequently, periodontal surgery was chosen to improve the anatomic characteristics, to eliminate the trauma promoted by the incorrect position of the lower labial frenum, and improve oral hygiene.

Instructions on dental hygiene with an end-tufted brush were provided to both, the mother and patient.⁸⁻⁹

During the operative appointment, a labial frenectomy was performed. A topical anesthetic benzocaine 20% (ComfortCaine®, H.J. Bosworth Co. USA) and infiltrative buccal bilateral anesthesia, lidocaine 2% with epinephrine 1:100000 (DFL, Brazil) was slowly administered in the area of the lower labial frenum to prevent swelling and possible surgery complications.

To reposition the frenum, the lower lip was pulled and a tissue scissor positioned parallel to the alveolar bone for the primary incision. The tissue scissor was selected because of its facility to make a straight and precise incision, similar on both sides (Figure 2). After that, a surgical blade #15 and surgical curettes were used to sever the remaining frenum fibers.

Mucosal suture to the periosteum was performed around the surgical wound to provide local healing by secondary intention (Figure 3). The area was protected with surgical dressing (Coe-Pak™, GC America, USA) for 48 hours. The patient received instructions about post operative diet (cold and liquid, to avoid hemorrhage and excessive movement, oral hygiene and prescription of an analgesic (Acetaminophen) in case of discomfort.

A week later, the suture was removed and the postsurgical evaluation was performed. Follow up post surgical evaluations were performed at 15, 45, 75 days and 1,5 years.

In the last evaluation (2 years), revealed better oral care and a 2mm gain in coronal reattachment (Figure 4).

DISCUSSION

The development of gingival recession is rarely related to a single factor. Two basic types of recession can occur. One is related to periodontal disease or to associated factors, and the second is related to mechanical factors, including the dental care.²⁻⁵ In this case report, the presence of the lower labial frenum resulted in tissue ischemia, complicating oral hygiene and promoting local chronic gingival inflammation.

Despite the presence of gingival recession in the left central incisor it did not expose the cemento-enamel junction. Consequently, the choice of periodontal surgery intended to prevent gingival recession progress, promote local gingival health and improve dental care.

The proposed surgical technique repositioned the lower labial frenum, eliminating the tension in the gingival margin. The technique is easy to execute and recommended by pediatric dentists as soon as the diagnosis is made.

Gingival health is independent of the width of the attached gingiva. Clinical and experimental studies have shown that in the presence of plaque, areas with minimal attached gingiva had the same resistance to continuous loss of insertion when compared to areas with large width.¹⁰⁻¹² Despite this, the surgical technique used in this case provided a gain in the attached gingival, favored dental care and prevented local biofilm accumulation.

The surgical technique used was proposed by Fowler and Breault,⁷ where the exposed periosteum supply granulation tissue, forms a width of attached gingiva that generally is esthetically acceptable.⁷⁻¹³ To decrease the risk of relapse, Fowler and Breault⁷ proposed securing the mucosa of the lip to the underlying periosteum. In this case report, three modifications were performed: Repositioning the lower labial frenum; suturing the surgical wound; and protecting the sutured-area with surgical dressing.

This case report suggests that early diagnosis and surgical treatment of the lower labial frenum in school age children is fundamental for eliminating etiological factors, reestablishing normal anatomic characteristics and preventing periodontal disease.

REFERENCES

1. Placek M, Miroslav S, Mrklas L. Significance of the labial frenum attachment in periodontal disease in man. Part I: classification and epidemiology of the labial frenum attachment. *J Periodontol*, 45: 891–894, 1974.
2. Zachrisson BU. Orthodontic and Periodontal therapy. In: Lindhe J, Karring T, Lang NP, eds. *Clinical Periodontology and Implant Dentistry*. 4th ed. Copenhagen: Blackwell Munksgaard, 744–748, 2003.
3. Borghetti A, Guy JP, Cesano B. Frenectomy associated with a triangular gingival graft. *J Periodontol*, 10(4): 373–8, 1991.
4. Palioto DB, Barros RRM, Papalexidou V, Novaes-Junior AB. Recessões gengivais. In: Paiva JS, Almeida RV, eds. *Periodontia: atuação clínica baseada em evidências científicas*. 3th ed. São Paulo: Artes Médicas, 245–273, 2005.
5. Breault LG, Fowler EB, Moore EA, Murray DJ. The free gingival combined with the frenectomy: A clinical review. *Gen Dent*, 47(5): 514–518, 1999.
6. Wennström JL, Prato GPP. Terapia Mucogengival. In: Lindhe J, Karring T, Lang NP, eds. *Clinical Periodontology and Implant Dentistry*. 4th ed. Copenhagen: Blackwell Munksgaard, 576–629, 2003.
7. Fowler EB, Breault, LG. Early creeping attachment after frenectomy: A case report. *Gen Dent*, 48(5): 591–593, 2000.
8. Gontijo I, Navarro RS, Haypek P, Ciamponi AL, Haddad AE. The applications of diode and Er:YAG lasers in labial frenectomy in infant patients. *J Dent Child*, 72: 10–15, 2005.
9. Haddad AE, Fonoff RDF. The abnormal maxillary anterior frenum – diagnosis and surgical treatment. *J Bras Odontopediatr Odontol Bebê*, 3: 125–129, 2000.
10. Lindhe J, Nyman S. Alterations of the position of the marginal soft tissue following periodontal surgery. *J Clin Periodontol*, 7: 525–530, 1980.
11. Freedman AL, Green K, Salkin LM, Stein MD, Mellado JR. An 18-year longitudinal study of untreated mucogingival defects. *J Periodontol*, 70: 1174–1176, 1999.
12. Wennström JL. Lack of association between width of attached gingiva and development of gingival recessions. A 5-year longitudinal study. *J Clin Periodontol*, 14: 181–184, 1987.
13. Edward JG. Soft-tissue surgery to alleviate orthodontic relapse. *Dent Clin North Am*, 37: 205–225, 1993.

Prevalence of Human Papillomavirus (HPV) in the Oral Cavity/Oropharynx of Children and Adolescents

Smith EM et al Pediatr Infect dis J, 26:836-40, September 2007

This study from the Family Medicine Clinic, from the University of Iowa, engaged 1235 children and adolescents (2 weeks to 20 years).

A questionnaire was handed to parents of children < 18 years centred on demographics, sexual behavior of adults, history of smoking and alcohol use. Oral cells were taken from all individuals and HPV DNA was detected using PCR, dot blot hybridization and DNA sequencing.

The overall prevalence of HPV was 1.9% with the highest percentages seen in the youngest and oldest groups (2.5% < 1 year old, 3.3% > 16 years).

The prevalence of HPV quadrivalent vaccine decreased these percentages. Parents did not transmit HPV to their children, but it is gradually acquired in childhood, supporting the necessity for vaccination before puberty, thus preventing HPV related oral and genital consequences.