M. Olivi, M.D. Genovese, G. Olivi*

Private practice, Rome, Italy
**Contract Professor, Catholic University of Sacred Heart, Rome, Italy*

email: olivilaser@gmail.com

DOI: 10.23804/ejpd.2018.19.01.10

Laser labial frenectomy: a simplified and predictable technique. Retrospective clinical study

ABSTRACT

Aim *Anomalous maxillary median labial frenum may be associated with undesired effects such as persistence of diastema between anterior teeth or traction of marginal gingiva. The aim of this study was to propose a surgical frenum repositioning technique that is minimally invasive, safe, easy, reproducible, and predictable. Another objective of the study was to identify clinical scenarios that could have indication for labial frenectomy associated with early orthodontic therapy, so as to justify early frenum repositioning in children. A retrospective assessment of clinical outcomes of this technique is described.*

Methods *A total of 20 frenectomies were performed on children aged 8 to 10 years. Frenectomies were performed with Er:YAG laser set at 150mJ 2.25-3.0W and 15-20 pulse per second, with water spray. Recall visits were done at 7, 21 and 90 days and 1, 2, 3 and 4 years.*

Results *At post-operative visits, all patients reported no post-operative pain or minimal discomfort. None experienced post-operative bleeding at a distance of few hours. All patients reported that the procedure was well tolerated and "acceptable". No recurrences occurred 4 years after frenectomy.*

Conclusion *The Er:YAG laser used in this study allowed considerable reduction of the operating time, reducing the amount of local anaesthetic used as well as avoiding surgical sutures. The surgical design and technique also minimised post-operative discomfort and complications resulting in stable healing overtime, making the procedure fully accepted by children.*

Keywords *Children oral surgery; Er:YAG laser; Labial frenectomy; Wound healing.*

Introduction

Labial frenum is a fold of fibro-mucous tissue that attaches lips and cheeks to the alveolar mucosa and/or gingiva and to the underlying periosteum of maxillary and mandibular bone. It is made of connective tissue and elastic and collagen fibers; muscular fibers originating from the orbicularis and fat tissue can be also present. Vascular structures and thin peripheral nervous ramifications are barely present. Placek et al. [1974] classified the labial maxillary median frenum based on its anatomical site of insertion: mucosal insertion, gingival insertion, papillary insertion and penetrating insertion (Table 1). The correct position of insertion of labial frenum is on the muco-gingival junction without interference with the adhesion of the attached gingiva [Henry et al., 1976]. In particular clinical conditions associated to thin gingival biotype, lack of adherent gingiva, and/or with no evident limits of the mucogingival junction, the maxillary median labial frenum can insert in an anomalous position, between the central incisors, in a progressively coronal position, also deeply in the bone with an insertion which is potentially harmful [Olivi et al., 2010] (Fig. 1). Beside its point of insertion, labial frenum can be also defined as abnormal when its structure is hypertrophic, fibrotic-stiff, ample and fan-shape like or bifid-ending [Olivi et al., 2010]. The presence of an abnormal or anomalous frenum on thin gingival biotype can induce, through ischemic phenomena resulting from traction, a progressive buccal recession of the gingival margin known as "pull syndrome" [Bergstrom

Normal Anatomy	
Class I	Mucosal insertion at the mucogingival junction
Class II	Gingival insertion below the mucogingival junction and above the gingival margin of the central incisors
Anomalous Anatomy	
Class III	Papillary insertion, buccally between teeth
Class IV	Papillary insertion at palatal papillae

TABLE 1 Anatomical classification of frenum insertion modified from Placek et al., 1974 and Kotlow, 2004.