# Er,Cr:YSGG laser labial frenectomy: A clinical retrospective evaluation of 156 consecutive cases

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The labial frenum may impede oral hygiene and result in diastema between anterior teeth and traction of the attached gingiva. Surgical removal of the frenum during puberty has been recommended for these patients. This article clinically evaluates the efficacy of an Er,Cr:YSGG laser in removing the labial frenum in an adolescent and pre-pubescent population. Using an Er,Cr:YSGG laser at a power setting of 1.5 W or less and 20–30 pulses per second, a total of 156 frenectomies were performed on 143 children. Patients returned for recall visits at 3, 7, 21, and 30 days and at one, two, and three years. Surgical areas were checked for adverse events, recurrency of frenum, and functional complications. Patient acceptance was also evaluated by using the Wong-Baker FACES pain rating scale.

Thirteen recurrences were reported in the adolescent population at 21 or 30 days, all of which required re-intervention; however, only two cases displayed recurrence of the frenum. None of the three pre-pubescent cases required additional intervention, maintaining acceptable clinical results after three years. Patient acceptance was very high, and no postoperative adverse events were reported.

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The labial frenum is an anatomical landmark that joins the lips and cheeks to the alveolar processes of maxillary and mandibular bones. Depending on the anatomical location, the frenum can be categorized as a maxillary and mandibular median labial frenum or as a maxillary and mandibular lateral labial frenum. The frenum is a fold of mucous membrane that consists of connective tissue with elastic and collagen fibers and (at times) muscular fibers originating from the orbicularis. This fold contains vascular structures with thin peripheral nervous ramifications and is covered by stratified layered epithelium.[1]

Ideally, the insertion of the frenum should be located at the level of the mucogingival junction, so as not to interfere with the adhesion of the attached gingiva; however, a variety of conditions related to the frenum's insertion can be observed clinically.[1,2] In fact, the inserting position of the frenum has been correlated with a reduction of adherent gingiva, affecting the mucogingival junction. An *abnormal frenum* is described as a hypertrophic, fibrotic, ample, fan-shaped or bifid-ending structure; the development of an abnormal frenum is not dependent upon its point of insertion (Fig. 1 and 2).

Fig. 1. An example of a fibrotic frenum with anomalous palatal insertion. *From:* Olivi G, Perugia C, Maturo P, Bartolino M, Docimo R. Utilizzo del laser Er,Cr in interventi di frenulectomia [Use of Er,Cr laser in frenectomies intervention] [article in Italian]. Dental Cadmos 2006;9:39-50. Reprinted with permission.

Fig. 2. An example of a bifid frenum with anomalous palatal insertion. *From:* Olivi G, Perugia C, Maturo P, Bartolino M, Docimo R. Utilizzo del laser Er,Cr in interventi di frenulectomia [Use of Er,Cr laser in frenectomies intervention] [article in Italian]. Dental Cadmos 2006;9:39-50. Reprinted with permission.