#### G. Olivi, A. Signore, M. Olivi\*, M.D. Genovese

University of Genoa, Department of Surgical Science (DISC) Master Course Laser in Dentistry, Genoa, Italy \*Undergratuated student, Faculty of Dental Medicine University "Victor Babes", Timisoara, Romania

e-mail: olivi.g@tiscali.it

# Lingual Frenectomy: functional evaluation and new therapeutical approach

### **ABSTRACT**

**Aim** When ankyloglossia is relatively severe and generates mechanical limitations and functional challenges, surgical reduction of the frenum is indicated. **Materials and methods** Laser technique is an innovative, safe and effective therapy for frenectomy in both children and adolescents. Erbium:YAG laser (2940nm) can be useful for paediatric dentist: 1.5W at 20pps is a commonly used average power to easily, safely and quickly cut the frenum.

**Results** Usually after laser frenectomy, the postoperative symptoms and relapse are absent.

**Conclusion** Early intervention is advisable to reduce the onset of alterations correlated to the ankyloglossia. A multidisciplinary approach to the problem is advisable, in collaboration with orthodontist, physiotherapist and speech therapist, to better resolve the problem.

**Keywords** Ankyloglossia; Erbium laser; Laser frenectomy; Lingual frenectomy.

## Introduction

The lingual frenum is a mucosal fold that connects the bottom of the body of the tongue to the floor of the mouth and to the mandibular bone. When the frenum is thick and very tight and/or its place of insertion limits the mobility of the tongue, it can result in ankyloglossia (from the Greek "ankylos" which means tied and "glossa" which means tongue) [Various authors, 1975].

Ankyloglossia is an embryological anatomical

malformation that usually affects males more than females in a 3:1 ratio. It occurs in newborns with an incidence of about 5%, more frequently as an isolated event and sometimes associated to malformative syndromes (Simpson-Golabi-Behemel Syndrome, Optiz Syndrome, Beckwitz-Wiedemann Syndrome, Orofacial-digital Syndrome; cleft palate) [Kloars, 2007].

If the anomaly is relatively severe and generates mechanical limitations and functional challenges, surgical reduction of the frenum is indicated, followed by speech therapy for an immediate rehabilitation of the lingual muscle [Campan, 1996].

Furthermore, it should be also emphasised that a short frenum is not always tight or fibrotic; in fact, despite the reduced length of the lingual frenum, the elasticity of the floor of the mouth may still allow a normal mobility of the tongue thus making the frenectomy unnecessary.

#### Functional problems of ankyloglossia

> Breastfeeding difficulty is caused by the lingual hypomobility and the resulting inability of the nursing infant to squeeze the nipple against the upper arch and hard palate during suction; furthermore, the lateral margins of the tongue raise to form a U-shaped channel that wraps around the nipple to avoid the milk leaking into the vestibule of the mouth. During suction, the lips are also involved as they maintain the nipple in place while providing a seal to prevent loss of milk.

The complexity or, in more severe cases, the inability to correctly perform suction causes weight problems to the infant as well as a decrease in the production of maternal milk during the early stage thus encouraging bottle-feeding [Dollberget al, 2006; Wallace and Clarke, 2006; Srinivasan et al, 2006; Kotlow, 2004; Margolis, 2008].

Tongue is a fundamental organ for deglutition and a short lingual frenum can become a mechanical impediment to its proper function. Swallowing, a natural function which involves very complex neuromuscular activity, occurs with a progressive push of the tongue apex onto the retroincisal-palatal spot followed by the posterior and medium area of the tongue pressing on the hard palate first and soft palate after, thus ending on the wall of the pharynx. Anyone with ankyloglossia will have difficulty in swallowing, as it will be impossible to perform the movements described above [Garliner, 1996].

A short and fibrotic lingual frenum can cause functional problems starting at neonatal age with breastfeeding difficulty or early childhood with speech impediment for the correct pronunciation of dento-lingual-labial phonemes due to the reduced lingual mobility. A study on 1402 patients reported that more frequent speech disorders were: omission and substitution of /r/, and consonant clusters with