Treatment of tongue-tie using the DELight Er:YAG laser

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The author has had more than 20 years of experience revising tongue-ties, primarily using conventional techniques. He has, however, developed the following procedure using the DELight Erbium:YAG dental laser.

While the Er:YAG laser is recognized for its caries-removal and cavity-preparation applications, the laser also is cleared for soft-tissue surgery. The results with the laser are similar to those with other techniques, but with the additional major benefits of reduced healing time, little-to-no tissue contraction post-operatively, little-to-no post-operative discomfort, and reduced use of anesthesia. Correction is completed in the dental office.

Fig. 7 Six days post-op.

1. A topical anesthetic is applied to the underside of the tongue (Fig. 1).

2. A short-acting local anesthetic is infiltrated slowly into the area to be revised. *Note:* In cases where the frenum is mostly fibrous tissue, anesthesia may not be necessary.

3. Treatment depends on the severity of the frenum attachment. One option is to complete a simple dissection of the underside of the tongue, which takes a few seconds. Alternatively, a hemostat is placed to clamp the frenum (Fig. 2); the area is then revised by placing the laser tip under the hemostat and ablating the tissue. Complete the treatment using the Er:YAG laser set at 20Hz and 85mJ with the soft-tissue surgical tip. *Note:* Using this

Fig. 1 Just before laser surgery.

Fig. 2 During laser surgery.

Fig. 3 Immediately post-op.

Fig. 4 Immediate post-operative evaluation.

Fig. 5 Patient's range of movement is acceptable.

Fig. 6 Patient exhibits normal movement.

Classifications of tongue-ties

The classification of tongue-ties is based on the length of free tongue (that area from the tip of the tongue to the frenum insertion):

The significance of an abnormal lingual attachment should not be ignored or overlooked when evaluating the growth and development of the young child. The criteria I have established should assist the dentist or other health-care professionals in determining if problems are likely to occur. When an examination of the tongue is completed, and it is the opinion of the examiner that problems associated with an abnormal attachment are significant, are either creating problems, or have the potential to create future problems, the frenum should be revised.

Fig. 11: Clinically acceptable: normal range greater than 16 mm of free tongue.

Fig. 12: Class I: Mild tongue-tie, 12-16mm.

Fig. 13: Class II: Moderate tongue-tie, 8-11mm.

Fig. 14: Class III: Severe tongue-tie,: 3-7mm.

Fig. 15: Class IV: Complete tongue-tie, less than 3mm.

Fig. 11 Normal Range

Fig. 12 Class I

Fig. 13 Class II

Fig. 14 Class III

Fig. 15 Class IV

Fig. 16

Fig. 16: The tongue should be able to protrude outside the mouth, creating a cleft of the anterior border of the tongue.

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method, the glands in the floor of the mouth are avoided and no complications arise.

In most cases, the area heals without suturing (Fig. 3). Among the advantages of the laser procedure noted by the author are the reduction or elimination of significant post-operative pain or discomfort; and healing that is up to 30% faster than that found with conventional surgical techniques.

Figs. 4, 5, and 6 show the patient with normal movement at the immediate post-operative evaluation. Fig. 7 shows the patient six days post-op.

Other laser procedures, such as maxillary frenectomies and gingivectomies, have shown little or no tissue contraction.

Infants who, prior to treatment with the laser, could not nurse effectively, are usually able to immediately latch onto the nipple and nurse when returned to the mother. Older children are able to eat without difficulties after leaving the office.

Post-operative phone calls on the day of soft-tissue surgery treatment with the laser, as well as discussions with the parents and patients at their one-week follow-up appointments, have indicated that most children require little to no pain medication after the local anesthesia (if used) wears off. Parents and children all indicate that there has been little or no post-operative discomfort, eating difficulties, or bleeding. DPR

ABOUT: DELight®

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Ankyloglossia: a primer

As a "primary healthcare professional of the oral cavity," the pediatric dentist has the unique opportunity to oversee many of the changes in growth and development that children go through as the hard and soft tissues evolve. Today's pediatric dental practice includes the prevention, interception, and correction of developmental abnormalities sometimes found in these structures.

Initial examination of children should begin approximately six months after the first teeth appear—usually about 12-14 months of age. Some soft-tissue abnormalities, such as ankyloglossia, or tongue-tie, may interfere with nursing or normal development; and may present concern to parents or physicians even earlier. However, "traditional teaching expressed both in medical texts and in guide books for young parents has been that the tongue-tie is of little relevance, will have no adverse sequelae, and can be ignored." (Dr. Martin Glasson, head, Dept. Pediatric Surgery, New Children's Hospital, Westmead NSW, Australia).[1] Until recently, an in-depth search of the literature will provide few guidelines for healthcare professionals to use in deciding if a tongue-tie requires revision.[1,3]

The best definition of a tongue-tie can be found in the new text by Carmen Fernando: *Tongue Tie, From Confusion to Clarity*. "Tongue-tie is a congenital condition, recognized by an unusually thickened, tightened, or shortened frenum, which limits movement of the tongue in activities connected with feeding, and which has an adverse impact on both dental health and speech."[1]

Children's orofacial care requires the dentist to consider all aspects of a child's oral development. This includes examining developing soft- and hard-tissue structures (Fig. 8). Several years ago, the author examined more than 300 children in ages ranging from birth to 12 months for tongue mobility; and based upon those clinical observations, the author created a list of diagnostic criteria, which are useful in determining the need to watch or revise the lingual frenum (Figs. 9 and 10). The author also created a classification (see facing page) of tongue-ties based on the amount of space existing from the tip of the tongue to the frenum attachment (free tongue).[2] The tongue's mobility can influence many daily oral functions.

Fig. 8 Preoperative evaluation.

Fig. 9 Movement is restricted.

Fig. 10 Protrusion is limited.

References

1. Glasson M. Introduction. In: Fernando, C. Tongue-tie from confusion to clarity: a guide to the diagnosis and treatment of ankyloglossia. Sydney, Australia: Tandem Publications.
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3. Kotlow L. Ankyloglossia (tongue-tie: a diagnostic and treatment quandary). Quintessence Internat 1999;30(4). (Is available at Web site KIDDSTEETH.COM).