



Lingual Frenulectomy with a Diode Laser

The lingual frenulum (or frenum) is a midsagittal fold of fascia extending from the floor of the mouth to the underside of the tongue. The frenulum supports the tongue and aids in swallowing, feeding, and speech. An abnormally short lingual frenulum, however, results in ankyloglossia, also known as a “tongue tie,” which severely limits the normal movements of the tongue.

Tongue tie affects approximately 5% of children, with a higher frequency in males.¹ A number of grading systems have been developed to assess tongue ties; for example, Kotlow’s popular system (I-IV) measures the length of the “free tongue,” from the tongue tip to the frenulum insertion. The simplest method describes the frenulum as normal, anterior, or posterior (A).

With an anterior tongue tie, the frenulum extends to the tongue tip. Upon elevation, the tongue reveals a pathognomonic heart-shaped appearance (B). A posterior tongue tie is harder to diagnose because the frenulum is farther beneath the tongue. While an anterior tongue tie is considered a true case, the need for surgical intervention to correct a posterior tongue tie is debatable.

This Pearl reviews the steps for using a diode laser to perform lingual frenulectomy surgery. Its controversial role in helping young patients diagnosed with obstructive sleep apnea (OSA) will also be discussed.

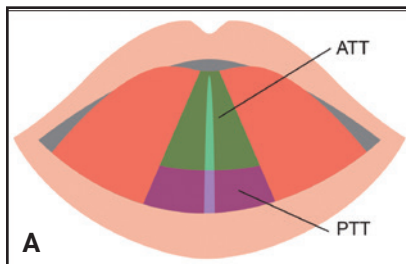
Procedure

Before applying a local anesthetic infiltration into the frenulum, I hold the tongue taut by wrapping it with a 2" × 2" gauze pad (C). I will use this same method during the surgical ablation. I prefer the simplicity of the gauze to the grooved director instrument, which is casually referred to as the “Mickey Mouse” retractor due to its appearance. The gauze also keeps metal away from the laser.

My preferred diode laser is the Spectralase 980* (for a video demonstration, see the online version of this article at www.jco-online.com). I operate the laser in the continuous wave mode at a power setting of 1.1W. During the surgery, I pull the tongue upward to keep it taut. A tongue tie that is fully released will reveal a diamond-shaped wound (D). The patient will immediately gain improved function and be able to stick out the tongue (E).

Following the surgery, the patient is given a 4oz bottle of chlorhexidine solution to rinse with three times per day until empty. The patient should not be alarmed if they experience mild bleeding on their pillow at night, swelling under their tongue, or lymphadenopathy. To mitigate their discomfort, I playfully prescribe all the ice cream and popsicles they can eat—doctor’s orders.

*Spectrum Lasers, Palm Desert, CA; www.spectralasidental.com.





Controversial Role in OSA

Pediatric dentists who choose to diagnose OSA commonly recommend a lingual frenulectomy to release a posterior tongue tie, but what is the connection? The theory is that a tongue tie contributes to OSA in two ways: habitual mouth-breathing, which causes enlarged tonsils, and a lower resting position of the tongue, which causes an abnormally arched palate and constricted nasal breathing.

This is conjectural and highly debated within the medical and dental communities. What we know for certain is that the lingual frenulum becomes less prominent during the first six months to five years of life, as the alveolar ridge grows in height and the deciduous teeth begin to erupt.² In other words, the lingual frenulectomy to resolve OSA is likely overprescribed in infants and preadolescents.

REFERENCES

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