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THE IMPORTANCE OF ACTIVE WOUND MANAGEMENT FOLLOWING FRENOTOMY

by Bobby Ghaheri

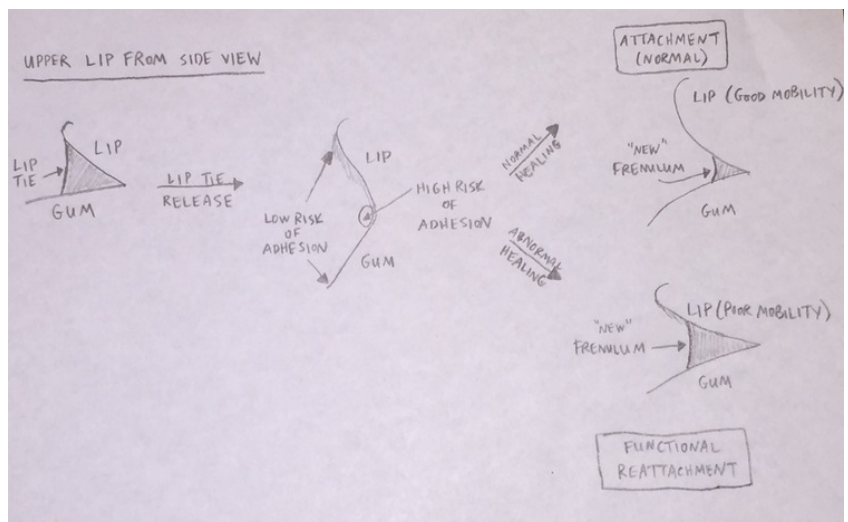
One of the more common discussion threads surrounding tongue/lip tie division is the topic of wound reattachment, where dyads exhibit brief windows of symptom resolution only to reverse their progress and return to the original problems with breastfeeding. This post will explain the principles of a complete tongue/lip release, the biology of wound healing, and the necessity for actively managing a wound to prevent scarring.

Frenotomy Wounds

An appropriate procedure for the lip or tongue will result in a complete release of tension caused by the inappropriately tight fibrous band. The best way to know if a proper release has been done is to look at the shape of the wound. For lingual frenotomies, there must be a diamond-shaped wound for the release to be complete. If there is no diamond-shaped wound, then the procedure hasn't fully released the tension. For the upper lip, complete laxity of the central lip should be seen and the tie should be completely lifted off of the gumline. If only a small nick in the lip tie or tongue tie is made, there will be little to no chance of improvement because the wound itself is small. Along the same lines, if the initial procedure was incomplete and scar tissue forms, the wound did not "reattach" - it was just incompletely opened. In contrast, a fully opened wound will pathologically reattach if active wound management isn't practiced. This pathologic reattachment is different than the typical attachment we see when the tongue or lip heal normally. What we are aiming for is a band that is more flexible and forgiving than what was there prior to the procedure.

This sketch of the release of a lip tie shows the result of proper wound management, where a finger is gently run under the lip to separate the lip from the gumline, versus poor wound management, where too much of the lip is allowed to readhere to the gumline. Remember, if the initial release was inadequate, then you would never have achieved the good mobility in the first place, so it can mimic the reattached lip.

The tongue tie wound is more complex. First, just snipping an anterior frenulum does little to improve tongue function for breastfeeding purposes. There is always a posterior, submucosal component of the tongue tie that needs to be released. If the procedure stops short and only the anterior part of the tie is released, no open wound



under the tongue results. There must be a diamond-shaped wound in order to have a full release of a tongue tie. After an incomplete procedure, stretches are irrelevant because the size of the wound created is minimal, so it will heal with minimal scarring. The problem in this scenario is that the tension of the posterior tongue tie is still present and function doesn't improve. What we want is a procedure that fully releases the tension and doesn't reattach. This can only be achieved by actively stretching the wound. My protocol for that is [here](#).

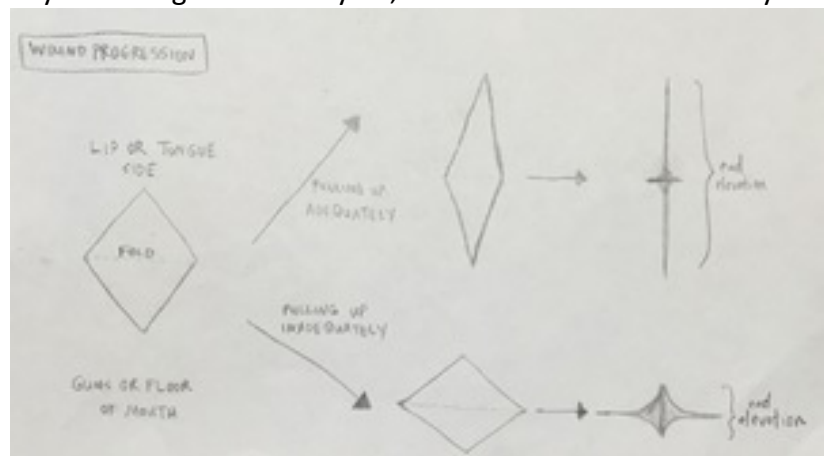
Principles of Wound Healing

While some of the principles of wound healing inside the mouth also apply to wounds on the skin, there are certain characteristics that are unique to oral wounds. The best description of these characteristics is in the book "Oral Wound Healing" by Hannu Larjava (2012). When a wound is created, it will undergo specific, predictable changes in an attempt to close that wound. Within 24 hours of wound creation, the edges of the wound begin to migrate towards the center of the wound so that the edges can try and eventually zipper together with a mucous membrane covering. This migration is facilitated by a scaffolding that forms over the wound (this is the white/yellow color we see as an oral wound is healing). At the same time, granulation tissue begins to fill the wound. Granulation tissue serves to reform the connective tissue that gives the new wound strength. It does this by migrating new blood vessels into the area and forming a matrix of fibers that are the precursors to scar formation. It can take months for the mature wound to finally form. During this time, wound contraction occurs as the scar fibers organize.

How does this apply to tongue tie and lip tie? When a provider creates a wound in the mouth to try and release a tethered band, the mouth will try close that wound. In the context of tongue tie and lip tie, we want those wounds to heal in an open conformation rather than closed back together. It is also important to translate this expected progression of wound healing into what should visibly happen to the wounds. Lip releases heal extremely well and aren't typically subjected to what happens under the tongue. It is important, however, to understand that there **will** be a new band connecting the lip to the gumline - that's part of normal lip healing. For the tongue, the first 5-7 days following a frenotomy demonstrate a soft wound with good mobility. As time goes on, the diamond under the tongue will start to contract and get firm. This is most prevalent between days 10-21 after a procedure. The scar tissue developing within the diamond will ultimately loosen again after day 21, and can take months to fully soften and mature.

Horizontal vs Vertical Healing

Remember, once an open wound is created in the mouth, the body will try to close the wound and contract toward its center. The end result is that the lip will try to stick back down to the gumline and the tongue will try to stick back down to the floor of mouth. The trick to achieving optimal results is to



try and guide the tissue, through proper stretches, to heal in a way that maximizes vertical movement. This vertical movement is important for upward flanging of the lip and more importantly, upward movement of the tongue towards the palate to form the seal [necessary for vacuum generation](#).

Tools and Techniques

To my knowledge, there haven't been any published studies that demonstrate superior wound healing outcomes with a particular surgical technique or instrument. Some laser studies show potential benefits when studied in the lab or in animal models, but so far no human studies exist that demonstrate a difference. What is important to recognize is that the tool being used for the procedure really doesn't matter. What matters is the depth of the release - an adequate release resulting in a diamond-shaped wound needs stretching regardless of the instrument that was used to create the wound.

Why do some wounds behave poorly and result in inflexible scar formation? There are many potential reasons:

- 1 The release was inadequate from the beginning so scar tissue forms on top of already immobile tissue
- 2 Poor adherence to wound stretching protocols
- 3 Poor surgical technique - cutting too deep (muscle damage) and stimulating a more rigorous inflammatory response
- 4 Delivery of too much energy to the wound, either by the inadequately trained laser provider who turns a 45 second procedure in a much longer exposure to laser energy or laser settings that are inappropriate
- 5 Inherent scar forming tendencies of the patient

While the success of the procedure doesn't come from the tool used, my experience has been that the use of electrocautery causes more collateral damage (when compared to laser or scissors), resulting in more scarring. There are always exceptions to this rule, so it is important to know how to [choose your provider](#) appropriately.

The most successful approach to tongue/lip tie revision includes:

- 1 The IBCLC, who helps to establish better latch mechanics and positioning in addition to improving sucking skills
- 2 A therapist to help resolve muscle tension which can inhibit both the latch and proper wound healing
- 3 The provider, who should create a proper wound and manage the healing in a way to maximize the mobility of the lip and/or tongue

This multidisciplinary approach is the key to successful rehabilitation from a problematic nursing relationship.