Advancing the Understanding and Treatment of the Thoracic Inlet and Incorporation of a New Still Technique—Part 2

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FAAO THESIS

New Clinical Applications for Treating the Thoracic Inlet

Indirect myofascial release

G. Bradley Klock, DO, FAAO, has a manuscript in development which details an indirect myofascial approach to treating strain patterns involving the upper thorax and shoulder girdle. The process involves identification and systematic correction of common dysfunctions and individual muscle strains that influence the inlet. It is his belief that a more lasting inlet correction is possible by treatment which addresses problems involving these areas first and subsequent correction of each individual component of inlet dysfunction (G. Bradley Klock, DO, FAAO, e-mail communication, May 12, 2015).

Muscle energy for the thoracic inlet fascial pattern utilizing the shoulder girdle

As has been noted above *(see Part 1)*, Zink's lymphatic approach with OMT places significant focus on major fascial patterns of the body's transitional regions. It therefore seems appropriate that a technique would be developed which engages the thoracic inlet somatic dysfunction from a broader fascial pattern approach. José S. Figueroa, DO, FAOCPMR, FAAPMR, published an article in *The AAO Journal* that details a muscle energy approach utilizing the entire shoulder girdle for correction of each of the components of the thoracic inlet.[34]

A New Indirect Myofascial Technique Utilizing Still Principles for the Thoracic Inlet

This new approach is both safe and efficient, and it overlaps with the positioning employed in Zink's common compensatory evaluation of the thoracic inlet. The patient is evaluated in the supine position with the physician at the head of the table. Sidebending and rotational components of the thoracic inlet are assessed in the typical manner *(Figures 2 and 3, page 10)*.

Treating the thoracic inlet, sidebent right, rotated right (S_RR_R)

1. The patient is supine.
2. The physician is seated at the head of the table.
3. Hand contact during the technique is very similar to the placement for diagnosing the sidebending component *(Figures 3 and 4, page 10)*.
4. For a patient with a diagnosis of sidebent right, rotated right, gentle pressure is applied inferiorly to the side of sidebending with the physician's entire right hand in a lobster-claw type position, with the thumb placed on the superior aspect of the first rib and 4 fingers posteriorly over the dorsal rib cage. At the same time, the left hand grasps the tissues on the left

(continued on page 10)

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Because of the length of this manuscript, it has been divided into two parts. The first part was published in the December 2017 issue of the *AAOJ*.

Figure 2. *Diagnosing rotation component of the thoracic inlet. Palpating the anterior-most aspect of the first rib to determine which one is more posterior, or closer to the table.*

Figure 3. *Diagnosing sidebending component of thoracic inlet somatic dysfunction with static and dynamic palpation of the most superior aspect of the first rib.*

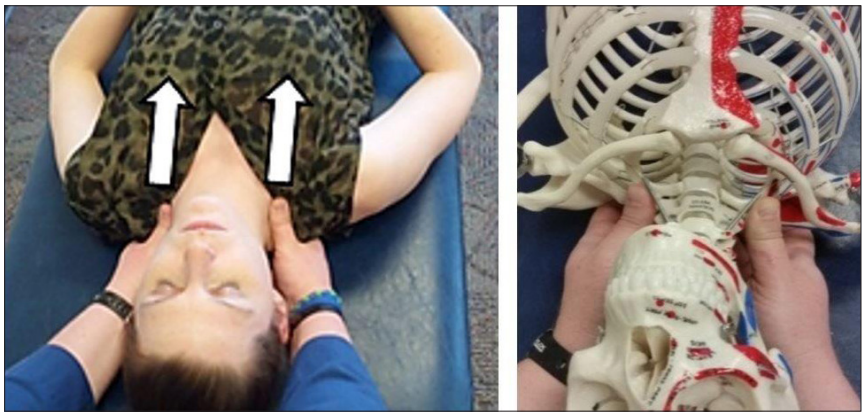


Figure 4. *Indirect position of treatment for thoracic inlet diagnosis: sidebent right, rotated right. White arrows indicate anterior or posterior. Purple (larger) arrow indicates inferior (caudal) direction.*

(continued from page 9)

side of the thoracic inlet in a similar hand position and gently directs an anterior force to encourage rotation to the right. The right thumb also can encourage right rotation with gentle pressure posteriorly toward the table.

5. The indirect position is then exaggerated with compression toward the feet on the side of sidebending and further rotation toward the right until a gentle release is appreciated.
6. While maintaining compression, the physician's hands move the tissues in a bicycle-pedal fashion simultaneously back through direct positioning and ending in neutral *(Figure 5, page 11)*.
    a. The right-hand motions appear to move in a clockwise direction if viewed from the right side of the table. Initially the tissues are taken from an inferior-posterior to superior-posterior to superior-anterior position then back to neutral.
    b. The left-hand motion also moves in a bicycle-pedal fashion; however, viewed from the left side of the table, it is a counterclockwise direction.
7. Release the compression once tissues are brought to neutral.
8. Maintain hand placement on tissues to re-evaluate sidebending, then re-evaluate rotation.

Applying the technique

When considering the more established approaches for treating the thoracic inlet, there are patients with conditions that preclude particular techniques. This new application of Still technique principles presents a safe, efficient, and effective treatment approach for patients who have a variety of challenging conditions.

Safety

Manipulative forces applied during the technique are relatively gentle and of moderate amplitude, initially bringing the tissues into the direction of ease, then moving one's hands through a pedal-like motion *(Figures 4 and 5)*. There are no significant pressures applied axially to the neck, and no extreme range of motion of the neck is required. This eliminates the need to use the head and neck as a lever for the movement of the rib, which may be absolute or relative contraindications in select conditions of the cervical spine (eg, herniated disc, radiculopathy, cervical myelopathy, cervical instability, or vertigo).

This new technique also eliminates the need to use the upper limb as a lever for the movement of the rib, which may be contraindicated in select conditions of the shoulder girdle (eg, shoulder

(continued on page 12)

Figure 5. *Photographs depicting hand placement through the steps of the technique for thoracic inlet diagnosis, sidebent right, rotated right.*

Left hand	Right hand
	
1. Starts in a superior/anterior position	1. Starts in an inferior/posterior position
	
2. Moves to inferior/anterior position	2. Then to superior/posterior position
	
3. Then to inferior/posterior position	3. Then to superior/anterior position
	
4. Then back to neutral	4. Then back to neutral

(continued from page 10)

impingement, instability, or rotator cuff syndromes with acromial bone spurs). Utilized in the hands of an experienced osteopathic physician, the technique can be performed safely on patients with the following challenging conditions (among others):

- neurologic conditions (cervical stenosis, radiculopathy or myelopathy, thoracic outlet syndrome)
- musculoskeletal or spinal conditions (aside from acute or unstable fractures of the first rib; eg, cervical spondylolisthesis with instability, shoulder instability or other significant mechanical disorder of the shoulder girdle)
- post-cervical spine surgery (laminectomy, discectomy, fusion)
- vascular issues (which may preclude certain positions of the cervical spine, eg, vertebrobasilar insufficiency, significant carotid disease)
- benign paroxysmal positional vertigo
- acutely ill or even ventilated patients if/when OMM is appropriate

Efficiency

The technique is rapid and efficient as: (1) the hand placement for treatment is identical to portions of the diagnosis; (2) both the rotation and sidebending component of the dysfunction can be treated with one technique; and (3) as a passive technique, minimal participation or feedback from the patient is required.

Once consent has been obtained to provide OMT, the technique can be performed with minimal need for patient cooperation or feedback, which can be challenging in situations with limited communication such as younger pediatric patients, patients with language barrier difficulties, or mental impairment. The position of diagnosis and treatment, combined with the short duration required for treatment and re-evaluation, ensures a time- and energy-efficient treatment.

Effectiveness

I have been utilizing this technique approach almost exclusively as the initial treatment for somatic dysfunctions of the thoracic inlet (SDTI) in clinical practice the past 7 years with significant success. The ultimate goal with correction of SDTI is improved function—whether the primary issue was articular or myofascial restriction (Paul R. Rennie, DO, FAAO, e-mail communication, May 15, 2015).

As with classic Still technique, the indirect and direct components can address both articular and myofascial components of the somatic dysfunction.[31(p92)] Effectiveness can be appreciated rapidly with a recheck after the technique is performed.

Considerations for Challenging Thoracic Inlet Corrections

The new Still technique presented above can be very effective and efficiently delivered as a first-line treatment for almost any patient. Some more challenging SDTIs can be resistant to correction with an initial, single technique. A simple modification to the technique is presented for significant non-neutral dysfunction. Considerations on choice of secondary thoracic inlet technique are discussed. Expanding one's focus to key somatic influences in the region is presented as well.

A modification to the proposed technique

Non-neutral dysfunction of T1 may be appreciated with the thoracic inlet, particularly in patients presenting with pain in the region. With the technique presented here, a modification can be utilized to address flexion or extension preference of T1 if present.

Slight tilting of the wrists into either flexion or extension can be utilized with the initial indirect positioning *(Figure 6, page 13)*. Following Still technique principles, this can be reversed when proceeding through toward the direct barrier.

Further considerations

When somatic dysfunction of the thoracic inlet persists following application of this technique, one needs to consider further treatment focused on the inlet. When considering the choice of technique, many factors may ultimately weigh in the decision.

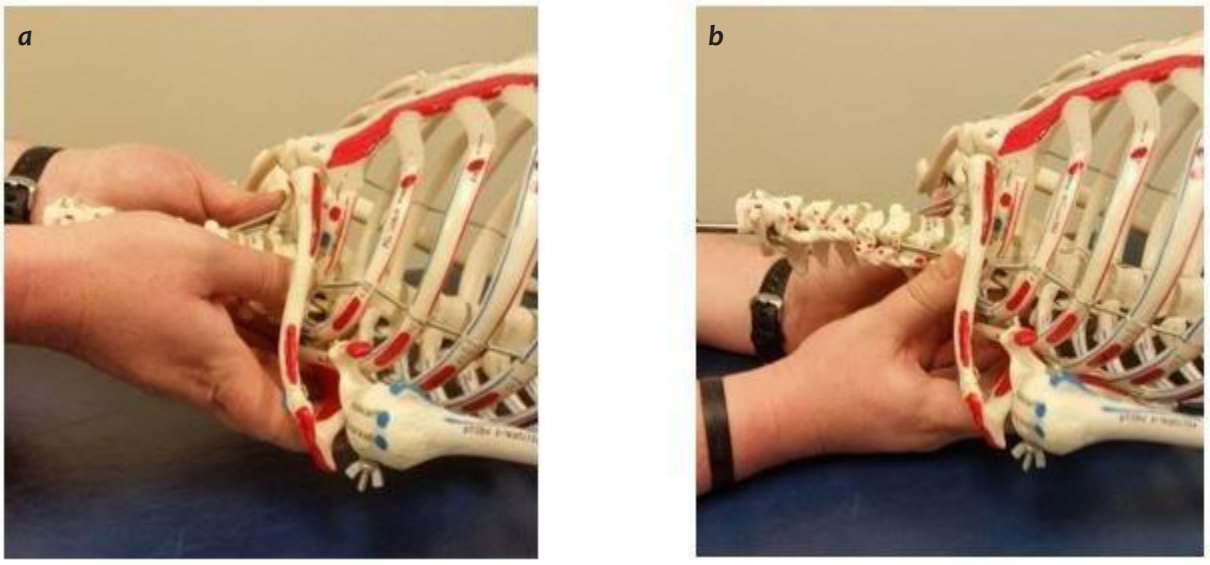
Secondary technique for SDTI

For instance, upon re-evaluating the SDTI, one may take some clues that can guide the choice of approach. If, with dynamic palpatory evaluation of the superior/posterior aspect of the first rib (sidebending component, *Figure 3*), one appreciates a hard-end feel with application of caudal pressure on the superior rib, one may find improvement with a secondary technique that best addresses the articular component of the dysfunction (eg, HVLA or low velocity, moderate amplitude (LVMA)).

If, upon re-evaluation of the superior first rib, one continues to appreciate a static asymmetry that demonstrates reasonable "give" with dynamic palpatory assessment (as described above), the persistent thoracic inlet dysfunction may respond to secondary techniques with either direct *or* indirect approaches (eg, ME, MFR, balanced ligamentous tension, LVMA etc.).

(continued on page 13)

Figure 6. *Pictures depicting forward (a) and backward (b) tilt of the wrists which can be utilized to engage flexion or extension components of non-neutral T1 dysfuntion.*



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SDTI resistant to correction

If the SDTI resists a secondary technique approach, it is imperative to expand the focus. I may broaden my perspective to include evaluation of upper thoracic or rib somatic dysfunction (inhalation somatic dysfunction holding ribs in inhalation), or perhaps evaluate for myofascial tightness of scalenes holding the rib elevated. It is prudent to evaluate for key myofascial restrictions (muscles attaching in—or crossing through—the thoracic inlet region).

Additionally, articular or position dysfunction of the clavicle, sternum, and scapula may need to be further addressed. Postural and/or segmental dysfunction of the cervical spine and occipital-atlantal region also may need to be addressed.

When the rotation component of the thoracic inlet appears challenging to correct, evaluate shoulder girdle dysfunctions, especially shoulder protraction. Addressing strains in the pectoral, subscapularis, or latissimus muscles; addressing articular dysfunction of the clavicles and posterior (upper) ribs; or providing clavipectoral stretch, and/or muscle energy to the entire shoulder girdle can help to balance the body in the coronal plane and correct dysfunction which may be impacting thoracic inlet rotation.

Conclusions

The clinical relevance of the thoracic inlet region has been well documented in osteopathic literature. Treating this region is particularly important for the physician utilizing a respiratory-circulatory approach to OMT with the goal of improving homeostasis and overall health.

There remain challenges to rapid and effective resolution of SDTI. A significant reason is that SDTI is often confounded by compensation for other conditions, eg, biomechanical, postural, or traumatic. Utilizing a more global approach with awareness of the dynamic structural relationships and functionality of the region, one can approach the inlet with enhanced success.

Proposed in this paper is a new technique utilizing Still technique principles. The technique is effective in that it is both indirect and direct and can address both myofascial and articular restrictions. It is highly efficient, presenting a means of addressing the thoracic inlet somatic dysfunction with one technique and from the same body and hand position as the diagnosis and post-treatment recheck. It is also safe for use with nearly all presenting patients.

(continued on page 14)

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(continued from page 13)

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