A Still Technique to Correct Upslipped Innominate Somatic Dysfunctions

José S. Figueroa, DO, FAOCPMR, FAAPMR, and Allison M. H. Juba, DO

CLINICAL PRACTICE

Abstract

Various techniques to address an upslipped innominate have been previously described in the literature, though none have illustrated a single Still technique to correct this dysfunction. This article describes the diagnosis of an upslipped innominate and correcting it by applying a Still technique.

The importance of addressing upslipped innominates is included, as well as a discussion on additional somatic dysfunctions that might make upslipped innominates difficult to resolve.

Introduction

Somatic dysfunctions of the innominate include pubic dysfunctions, innominate rotations, innominate flares, and innominate shears. A superior innominate shear, also referred to as an upslipped innominate, involves the superior shearing of one innominate bone along the sacroiliac joint. This somatic dysfunction is an important aspect of pelvic somatic dysfunctions that should be addressed to fully resolve the innominates.

There are multiple causes of upslipped innominates, and patients may or may not be able to pinpoint the exact cause. Traumatic events such as a sudden transfer of weight to an outstretched leg, falling onto one ischial tuberosity, or stepping into a hole can all cause the innominate to shear upward.¹ Less traumatic activities also can contribute, like asymmetric weight bearing on one leg for a prolonged time, upward shear on the side of a shoe lift, a leg length discrepancy causing the long leg to shear superiorly, or a mechanical gait disturbance like a limp or a Trendelenburg gait from a weak gluteus medius or minimus.^{1,2}

Addressing upslipped innominate dysfunctions is an important aspect of providing osteopathic manipulative treatment (OMT). An innominate shear is one of the 6 somatic dysfunctions associated with failed lower back pain syndrome, referred to as the "dirty half dozen."² Philip E. Greenman, DO, determined that treating the dirty half dozen in patients with lower back pain who were disabled had 75% return to full employment and activities of daily living.³ Additionally, an upslipped innominate can cause associated sacroiliac pain, pelvic pain, and hip pain.⁴ It also makes the entire From the Des Moines University College of Osteopathic Medicine in Iowa.

Editor's note: Dr. Juba was a fifth-year student when the manuscript was submitted.

Financial disclosures: none reported.

Correspondence address: Jose S. Figueroa, DO, FAOCPMR, FAAPMR Assistant Professor Des Moines University College of Osteopathic Medicine 3200 Grand Ave, Room 1008 Des Moines, IA 50312-4104 (515) 271-1429 Jose.Figueroa@dmu.edu

Submitted for publication November 9, 2016; final revision received July 19, 2017; manuscript accepted for publication July 20, 2017.

pelvis unlevel, thereby creating a functional scoliosis which could contribute to upper back, neck, and head pain.

Previously described techniques for an upslipped innominate include muscle energy (ME); high-velocity, low-amplitude (HVLA); and a 3-step Still technique. According to Richard L. Van Buskirk, DO, a Still technique treatment for an upslipped innominate requires applying the technique at each of the three restriction poles of the sacroiliac joint.¹ If only one of the poles is addressed, the dysfunction would persist in both motion restriction and patient's symptoms.¹ According to Van Buskirk, the first step of the treatment addresses the middle pole. The second and third steps are the anterior and posterior innominate rotation treatments, which address the inferior and superior sacroiliac poles respectively.¹ Up to this point, no single treatment using the Still technique had been found to completely resolve an upslipped innominate.

This article describes a treatment approach for an upslipped innominate using the Still technique. The technique was created using the basic principles of a Still technique, which involve taking

(continued from page 7)

the joint or tissue toward its position of ease, introducing a vector force from another site on the body that couples with the restricted tissue, carrying the tissue through its range of motion towards and through the restriction, and then returning the tissue to neutral and reassessing the tissues for resolution in the dysfunction.¹ In simple terms, the joint is taken into an indirect position toward its position of ease, compression is added, and then the joint is taken through its range of motion into a direct position through its restrictive barrier. The direct position for an upslipped innominate was obtained from TeePorten's HVLA technique as well as a muscle energy treatment from the *Atlas of Osteopathic Techniques*, which are direct techniques.^{6,7} The indirect position was then inferred to be the opposite of the direct position. A vast number of upslipped innominate somatic dysfunctions have been thoroughly resolved with this treatment.

Methods

Diagnosing an upslipped innominate

The literature shows various ways of diagnosing an upslipped innominate. *Foundations of Osteopathic Medicine* suggests that the anterior superior iliac spine (ASIS), posterior superior iliac spine (PSIS), and pubic ramus should all be more superior on the side of the positive standing flexion test and positive ASIS compression test.⁴ According to Greenman, the ASIS, PSIS, ischial tuberosity, and medial malleolus should be superior on the side of the positive standing flexion test, as well as finding laxity in the sacrotuberous ligament on the side of the upslipped innominate.² Van Buskirk suggests that the PSIS and ASIS are superior on the side of the positive standing flexion test and positive ASIS compression test, but he also suggests that there would be an ASIS tender point, described by Jones, present on the side of the dysfunction.^{1,5}

To determine the side of an innominate somatic dysfunction, either the standing flexion test or ASIS compression test can be used. Because the standing flexion test can occasionally show false-posi-

Figure 1. Positioning the patient for technique. Note the position of the arms.



tive or false-negative results from asymmetric hamstrings, latissimus dorsi, or quadratus lumborum tightness, the ASIS compression test is more reliable to determine the side of the somatic dysfunction.

To perform the ASIS compression test, the patient lies in a supine position. The physician places his or her whole palm upon each ASIS with the fingers along the lateral ilia pointing toward the table. Compression is applied posteriorly through the ASIS in an alternate fashion, beginning with one side and then the other. The side that is more resistant to compression is the side of the innominate somatic dysfunction.⁴

After the ASIS compression test has been performed, 5 landmarks should be used: ischial tuberosity, PSIS, iliac crest, ASIS, and pubic ramus. Three of the landmarks must be superior on the side of the positive ASIS compression test, and 1 of those must be the ischial tuberosity. For ease of transition, the ischial tuberosity, PSIS, and iliac crest are first identified with the patient in the prone position. If all 3 of these are elevated on the side of the positive ASIS compression test, then an upslipped innominate has been confirmed and the other landmarks do not have to be assessed. If 1 of the landmarks is questionable, then the patient can move into the supine position and the ASIS and pubic ramus can be identified.

Correcting an upslipped innominate utilizing Still technique

The patient should be positioned in the prone position with arms hanging off the sides of the table. *See Figure 1.* This is important in the treatment process as it ensures that large muscles like the quadratus lumborum and latissimus dorsi, which attach to the posterior iliac crest, remain symmetric in the tension that they apply to the innominate.

(continued on page 9)

Figure 2. Initial leg positioning for treating a patient with a right upslipped innominate, superior view. Notice the external rotation and adduction of the femur.



Figure 3. Initial leg positioning for treating a patient with a right upslipped innominate, side view. Arrow indicates physician applying compression at the knee through the femur toward the innominate.



Figure 4. Internal rotation and abduction of the thigh while still applying compression through the knee.



Figure 5. Final position of the treatment. Arrow indicates physician applying an LVMA or HVLA tug to the leg, applying compression through the knee.



(continued from page 8)

The clinician stands by the table on the side of the upslipped innominate. An initial, gentle leg tug is performed on the side of the dysfunction to assess for pain during the procedure. If pain is present, a different technique should be considered as this technique should not be painful in any way.

On the side of the dysfunction, the patient's knee is flexed to approximately 90 degrees while the thigh is adducted and externally rotated by bringing the foot toward the midline. *See Figure* 2. This adduction and external rotation achieves the indirect position as determined by reversing the direct position noted in other literature.^{6,7} A slight compression is applied at the knee through the femur, thereby pushing the dysfunctional innominate superiorly. *See Figure 3.*

Next, in a circumduction motion, the thigh is abducted to approximately 30 degrees and internally rotated by bringing the foot away from midline. *See Figure 4*. This abduction and internal rotation achieves the direct position. Compression is maintained throughout this circumduction. The knee is then extended while the hands slide down the lower leg closer to the distal tibia. Once the knee is fully extended, a firm but brisk leg tug is performed to bring the upslipped innominate inferior. This leg tug can be done with a low-velocity, moderate-amplitude (LVMA) force or with an HVLA force. *See Figure 5*.

Re-evaluating the patient

The leg is brought back to the neutral position and the innominate is re-evaluated. The landmarks used to diagnose the upslipped innominate as well as the ASIS compression test should be reassessed to ensure that the dysfunction has resolved.

Discussion

The technique described above is very effective in correcting upslipped innominates thoroughly, particularly after correcting innominate rotations and pubic dysfunctions if present. Even after waiting a period of time after the technique has been performed effectively, the upslipped innominate does not appear to recur. One benefit of using a Still technique is that it does not require effort from the patient like muscle energy or HVLA treatments, thereby making it useful in patients who have difficulty following directions or in patients with low vitality so as not to expend an excessive amount of energy.

Relative contraindications to this treatment are few but important to consider. First, a thorough history must be obtained to determine if the patient has any history of hip or knee replacements

⁽continued on page 10)

(continued from page 9)

or surgeries. If a hip replacement has occurred on the side of the upslip, additional techniques should be considered that do not require a leg tug. If the knee has been replaced, the tug can be applied by pulling on the distal femur, not the tibia. Additionally, on the test leg tug before performing the treatment, if the patient has any pain or discomfort, a different technique should be performed as this technique should cause no pain.

Side effects of this treatment may include post-treatment soreness, reduction in symptoms, and improved range of motion. Additionally, if the innominate has been upslipped for a long period of time, it is possible that patients may feel as though their gait has been altered, but this will improve over time.

There are a few reasons why an upslipped innominate may not correct fully or may recur with any of the upslipped innominate techniques. Strained or tight ipsilateral quadratus lumborum and ipsilateral tight latissimus dorsi muscles can hold the innominate in an upslipped position because of their attachments to the posterior iliac crest. Additionally, an inhalation somatic dysfunction at rib 12 can hold the innominate superior because the superior shift of rib 12 will hold tension on the quadratus lumborum, thereby keeping the innominate sheared superiorly as well. Sacral dysfunctions also can impact the innominates because of the attachments at the

0

sacroiliac joint. If all of these dysfunctions are addressed and the upslipped innominate technique has been performed successfully but the landmarks remain superior on one side, a small hemipelvis and short leg should be considered.

Conclusions

Upslipped innominates are an important aspect of pelvic dysfunction that can be overlooked as a cause for patients' symptoms. Applying the Still technique as described above is effective in resolving upslipped innominates, and it has few contraindications.

References

- Van Buskirk RL. *The Still Technique Manual*. 2nd ed. Indianapolis, IN: American Academy of Osteopathy, 2006: 17, 99-101.
- DeStefano LA. Greenman's Principles of Manual Medicine. 4th ed. Baltimore, MD: Lippincott Williams & Wilkins; 2011: 350-352, 355, 488.
- 3. Greenman, PE. Syndromes of the lumbar spine, pelvis, and sacrum. *Phys Med Rehabil Clin N Am*, 1996: 7(4):773-785.
- Chila AG, executive ed. *Foundations of Osteopathic Medicine*. 3rd ed. Baltimore, MD: Lippincott Williams & Wilkins; 2011:651, 588-590, 593.
- Jones L, Kusunose R, Goering E. *Jones Strain-Counterstrain*. Boise, ID: Jones Strain-Counterstrain, Inc, 1995.
- 6. Nicholas AS, Nicholas EA. *Atlas of Osteopathic Techniques*, 2nd ed. Baltimore, MD: Lippincott Williams & Wilkins, 2012: 286.
- 7. TeePorten BA, Boesler D. DMU OMM Handout, 1999.