Pelvic Corrections

Hypothesis: Pelvic Corrections Affect the Function of the Urinary Bladder

Brenda Fitzgerald

Manual Osteopathic Therapist, Registered Massage Therapist, Certified Equine Sport Therapist

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Abstract

Urinary incontinence is a significant health problem in the United States and worldwide. It has a considerable social and economic impact on individuals and society. (Nitti, 2001)

This case study stems from a client that sought out Manual Osteopathic Therapy in my office, in hope of regaining some normalcy of urinary bladder function following sudden paralysis and a diagnosis of Lupus. Any condition that impairs bladder and bladder outlet afferent and efferent signalling can cause neurogenic bladder. For patients who cannot retain normal volumes, treatment is the same as that of urge incontinence, including drugs and sacral nerve stimulation. (Shenot, 2018)

The techniques were chosen as the practitioner knowledge and research of anatomy and related structures indicated a possible association between symptoms experienced and nerve involvement. Special care was required in this case study, as

the client exhibits potentiated tendencies, thus care was taken to not have the client experience further discomfort due to a 'flare up' in her condition. All responses, signs and symptoms during and following treatment were documented.

The results compiled from this case study are not conclusively indicative that pelvic corrections affect the urinary bladder function, although Client A did experience a significant improvement of urinary bladder function. Further study, with a larger number of participants would be required to yield statistically significant results.

Introduction

Urinary incontinence is a significant health problem with considerable social and economic impact. In young women, the prevalence of incontinence is usually low, but prevalence peaks around menopause, with a steady rise there-after into later life. In women, moderate and severe bother have a prevalence ranging from about 3% to 17%. Severe incontinence has a low prevalence in young women, but rapidly increases at ages 70 through 80. (Nitti, 2001)

In flaccid (hypotonic) neurogenic bladder, volume is large, pressure is low, and contractions are absent. It may result from peripheral nerve damage or spinal cord damage at the S2 to S4 level. With acute cord damage, initial flaccidity may be followed by long-term flaccidity or spasticity, or bladder function may improve after days, weeks, or months. (Shenot, 2018)

With an overactive bladder, you may feel a sudden urge to urinate that's difficult to control, experience urge incontinence - the involuntary loss of urine immediately following an urgent need to urinate, urinate frequently, usually eight or more times in 24 hours, awaken two or more time in the night to urinate. Any type of incontinence can affect your overall quality of life including emotional distress or depression, anxiety, sleep disturbances and interrupted sleep cycles and issues with sexuality. (Mayo, 2018)

The current treatment for urinary bladder dysfunction include: cauterization, increased fluid intake, drugs, and surgery if conservation measures fail. (Shenot, 2018)

The lower urinary tract is innervated by three sets of peripheral nerves involving the parasympathetic, sympathetic and somatic nervous systems:

- pelvic parasympathetic nerves: arise at the sacral level of the spinal cord, excite the bladder, and relax the urethra.
- lumbar sympathetic nerves: inhibit the bladder body and excite the bladder base and urethra.
- pudendal nerves: excite the external urethral sphincter. (Yoshimura, 2003)

When a spinal segment is disturbed, the entire metamere at that level adopts a degree of dysfunction. (Parsons, 2006)

This study intends to determine if pelvic corrections will affect the function of the urinary bladder. To perform this study, the client who presented with dysfunction of the urinary bladder was treated with sacral corrections using manual osteopathic therapy techniques. Due to the nature of the dysfunction, the client was structurally reassessed immediately following each treatment, and reported any changes in urinary bladder functions at the next appointment. The client committed to a treatment plan that included manual osteopathic appointments twice the first week, and once a week for five weeks thereafter. It was expected that the urinary bladder would improve by the final week of treatment.

Client A is a 31 year old female stay-at-home mom, diagnosed with Lupus in 2012. Within a week's time she was admitted into the hospital and was paralyzed from the waist down. Following many tests, she was diagnosed with Lupus that has affected her nerve supply of the lumbar and pelvic region. Since that time she has suffered with an overactive urinary bladder. This causes her to need to void her bladder often, but also is unable to void her bladder fully. To remedy the overactive bladder, she has been prescribed botox injections by her medical doctor 'to turn off

the bladder' according to Client A. Due to these injections, she has to use a catheter several times a day in order to void her bladder. Client A booked Manual Osteopathic Therapy treatment in hope of regaining some normalcy of urinary bladder function, decrease the regularity of the botox injections and possibly eliminate the need for multiple daily self-catheterizing. Client A is under medical supervision and was encouraged to seek further treatment of a manual osteopathic therapist by her medical doctor.

The Osteopath seeks first physiological perfection of form, by normally adjusting the osseous framework, so that all arteries may deliver blood to nourish and construct all parts. Also that the veins may carry away all impurities dependent upon them for renovation. Also that the nerves of all classes may be free and unobstructed while applying the powers of life and motion to all divisions, and the whole system of nature's laboratory. (Still, 1899)

Methods

Client A consented to provide informed consent to treatment techniques along with treatment finding to be included within this case study. Her identify has been protected and the details of her condition protected with anonymity. Client A committed to receiving treatment once a week for six weeks, at which time a reassessment would take place.

Physical examination included global assessment and a structural assessment performed standing, seated, prone and supine. Mitchell testing was performed for the structural assessment. Metamere assessments were performed with emphasis on the lumbosacral nerve roots. All findings were documented in the Client A's chart, along with short term and long term goals.

Pelvic and lumbar dysfunctions were identified as present upon structural assessment of Client A. Due to the potentiated state of Client A, a second appointment was scheduled to proceed forward with treatment.

The second appointment included a quick reassessment of structure. Mobilizations using circumduction of both hip joints clockwise and counterclockwise five times, passive drop of lower extremities, and ilium inflare and outflare resistance to warm up tissues prior to treatment was incorporated, along with spinal oscillations. Upon identification of coccyx misalignment the following technique was performed in the following order:

1. Client seated with knees against the table, legs stabilized with feet on stool, therapist standing on left side.
2. With gloved hand, the coccyx was landmarked with fingertips.
3. Other arm across anterior surface of client with fingertips on client's shoulder.
4. Hand on coccyx, hooked fingertips on the anterior aspect of coccyx
5. Waited for tissue softening, rocking client slowly front to back and side to side to release tissue.
6. Instructed client that expected sensations include intense pressure, spasming, muscle twitching, tissue slackening, and coccyx movement. Also instructed client to relate any sensations of discomfort whether physical, or emotional, and pain at 7 or greater out of 10.
7. Reassessment showed dramatic improvement of coccyx alignment.

Prior to coccyx treatment, Client A was explained the entire process and clarified that consent was given to therapist to commence treatment. As client experienced very strong sensations including intense pressure and muscle spasms, therapist and client both felt further treatment should be scheduled for the following appointment.

The third appointment, scheduled one week after the initial appointment, Client A reported discomfort was experienced for 24 hours following the coccyx correction, tingling sensation in pelvic region for approximately 48 hours and greater comfort while seated. No change in urinary bladder function, but possible change in comfort level while self-catherizing. Reassessment of all structures performed. Coccyx showed correct alignment. Mobilizations using circumduction of both hip joints clockwise and counterclockwise 5 times, passive drop of lower extremities, and ilium inflare and outflare resistance to warm up tissues prior to

treatment was incorporated, along with spinal oscillations. Pubic dysfunction is still present, the following technique was performed in the following order:

1. Client positioned supine with knees flexed and medial malleoli touching.
2. Tissue was warmed up with resisted abduction and adduction, with 10% effort held for 10 seconds with 3 repetitions.
3. Therapist positioned forearm with straight wrist between client flexed knees, asked for quick adduction with 100% effort for one second with full muscle relaxation immediately after.
4. A loud crepitus was noted, along with client report of short, sharp discomfort in groin region.
5. Reassessment showed pubic tubercles realigned.

Following discussion, client and therapist decided to wait one week for next appointment to proceed with further treatment.

The fourth appointment, Client A reported slight discomfort experienced for less than 24 hours following previous appointment and correction of pubic tubercle dysfunction. Client A also reported that comfort of self-catherization was greatly improved. Reassessment of all structures performed, with coccyx and pubic tubercles maintaining correct alignment. Sacrum showed depressed inferior lateral angle on right side in extension present and bilateral counternutation. Correction for depressed inferior lateral angle was performed in the following order:

1. Client prone with feet off the end of table, therapist standing on right side facing client's feet.
2. Therapist placed hand on sacroiliac joint, and passively abducted the limb to open the sacroiliac joint. Repeated on unaffected side.
3. Therapist landmarked affected sacroiliac joint with ulnar border of hand.
4. Client asked to turn head to the right, affected side.
5. Therapist loaded the superior aspect of the sacrum caudally, holding for 3 seconds, repeated 3 times.
6. Client A reported mild pressure, no discomfort.
7. Reassessment showed right depressed inferior lateral angle no longer present.

Therapist and client discussion regarding continuing forward with further treatment and agreed to correct the bilateral counternutation of sacrum. Correction of bilateral counternutated sacrum was as follows:

1. Client prone, feet off the end of table, therapist standing between adducted lower limbs.
2. Therapist's left hand located central on sacrum, right hand on client's posterior left leg.
3. Client instructed to resist with leg, while therapist applied constant load on sacrum, hold for 5 seconds, 3 repetitions.
4. Reassessment showed counternutation no longer present.

Therapist and client discussion determined that further treatment should be performed at next treatment, scheduled in one week's time. Client A became somewhat visually uncomfortable and requested to use the bathroom facility. Upon return to the treatment room, she reported that was the first time in several months that she has experienced sensations of needing to void her bladder. Client A became very emotional, and reported that she was two weeks past due for her next urinary bladder botox injection. Client A's doctor was willing to postpone injections at the client's request.

Client A cancelled the fifth appointment due to a family emergency, but did report that over the week since her last appointment, she is now able to void her bladder without self-catherization during the daytime. She still uses self-catherization at bedtime to ensure her bladder is completely empty so she may obtain a good nights sleep. Most significant to her was the ability to go for walks with her children without fear of accidental urination.

Results

Client A's physical examination before treatment showed left coccyx misalignment, right depressed inferior angle and bilateral sacral counternutation. Within the duration of four manual osteopathic therapy appointments, all

previously noted imbalances were corrected. Most significant reports from Client A was return of urinary bladder sensation approximately 50% of the time, ability to void bladder approximately 80% of the time, and significantly decreased accidental urinary release almost 90% of the time. Accidental urinary release still present upon lifting heavy objects or rarely after sitting for long periods of time.

Discussion

Research shows that neurogenic bladder is due to a brain, spinal cord or nerve problem. Several muscles and nerves must work together for the bladder to hold urine until the appropriate time to empty it. Nerve message go back and forth between the brain and the muscles that control bladder emptying. If thee nerves are damaged by illness or injury, the muscles may not be able to tighten or relax at the right time. In people with neurogenic bladder, the nerves and muscles don't work together very well. As a result, the bladder may not fill or empty correctly. Bladder muscles may be overactive and squeeze more often than normal and before the bladder is full with urine. Sometimes the muscles are too loose and let urine pass before it is appropriate. (Nagler, 2019)

The pelvic nerve (S2-4) is a parasympathetic nerve. Increased signals from this nerve causes contraction of the detrusor muscle, stimulating micturition. The pudenal nerve (S2-4) is a sympathetic nerve. It innervates the external urethral sphincter, providing voluntary control over micturition. In addition to the efferent nerves supplying the bladder, there are sensory (afferent) nerves that report to the brain. They are found in the bladder wall and signal the need to urinate when the bladder becomes full. (Jones, 2019)

Nerve regeneration time depends on how severely the nerve was injured and the type of injury sustained. Sensory nerves are more resilient than motor nerves and can recover sensation months or years after injury. The degree of nerve recovery depends on a number of factors: age, mechanism of injury, time since the injury, mechanism of repair, type of nerve and associated injuries. (Ayers, 2019)

In the case study of Client A, improved urinary bladder function was experienced following five appointments incorporating techniques to correct pelvic imbalances present. These results could be due to release of nerve impingement of the pelvic region, the body healed nerve supply issues over the course of many months and Client A was unaware due to urinary bladder botox injections or other factors that this therapist is aware of. Further research and study could include:

1. Pelvic nerve impingement release on greater number of clients experiencing urinary bladder dysfunction.
2. Length of time of nerve repair.
3. Occurrence of nerve repair or rejuvenation of the pelvic and pudenal nerves.

Conclusion

The results of this case study are not conclusive, nor has it been tested for statistical significance to prove whether pelvic corrections affect the function of the urinary bladder. Analysis of the one case subject did show significant improvement of urinary bladder function following pelvic correction over several appointments over several weeks. It is noted that there are multiple variables to take into consideration in order to draw an irrefutable conclusion. Further study would be recommended to determine the validity and efficacy of pelvic corrections affecting urinary bladder function.

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