CASE REPORT

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Osteopathic Approach to a Patient with Recurring Low Back Pain following OMT results in Diagnosis of Underlying Gynecological Etiology: A Case Report

Abstract

This case report describes the occurrence of acute low back pain, and the application of Osteopathic Manipulative Treatment techniques (OMT) initially resulting in resolution of the patient's presenting symptoms. When OMT is successful in resolving the patient's symptoms, this usually supports a musculoskeletal etiology; however, when confronted with recurrence of symptoms despite repeated successful resolution of these symptoms with OMT, the physician should suspect an organic etiology. This case demonstrates the importance of the osteopathic physician understanding viscerosomatic dysfunctions and the efficacy of the osteopathic approach to a patient with recurring low back pain following OMT resulted in diagnosis of the underlying gynecological organic etiology for this patient's symptoms.

Background

Low back pain is the source of much morbidity. According to the U.S. Centers for Disease Control and Prevention (CDC), back pain was the greatest percentage of pain given all regions of the body, accounting for 39% of all pain.¹ In addition, women experienced back pain more than men (40.6% vs. 37.2%, respectively). These differences were determined to be statistically significant (p<0.05).¹ Rubin reported that 15%-20% of adults had back pain in a single year and that 50%-80% of adults had experienced back pain at least once during their lifetime.²

Chien and Bajwa reported that the etiology of over 90% of all back pain is mechanical.³ Of the mechanical back pain etiologies, 70% are due to lumbosacral muscle strains and sprains, 10% are due to lumbar spondylosis, and 5%-10% are due to disc herniation.⁴ Vertebral compression fracture, spondylolysis, spondylolisthesis, and spinal stenosis each contribute 3%-4%.⁴

Shokri and associates reported that 5%-15% of back pain is due to non-mechanical etiologies.⁵ Kaya and Kerimoglu reported that "[t]he most common non-[musculoskeletal] findings were follicular cysts (15.3%) and uterine fibroids (4.9%)."⁶

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Case Report

Chief Complaint

A 50-year-old female presented to the clinic with low back pain.

History of Present Illness

The patient was referred by an osteopathic family physician. The family physician stated that the patient had been treated for about 3 months with a combination of NSAIDs, muscle relaxants, and OMT (approximately every 2-4 weeks) but the pain kept coming back and asked if I would evaluate and treat the patient. The patient needed to be evaluated and treated during the onemonth period prior to going overseas to an area with more limited healthcare resources where the patient was going to be living.

The patient stated her pain was achy, constant, and seemed to affect her entire lower back and pelvis. ("Everything hurts all the time.") She said that her pain level was 6/10. She indicated (by pointing with her hand) that the area of her pain was lower thoracic spine to the upper lumbar spine. She stated that her pain increased with standing or walking and decreased to 4/10 with Ibuprofen.

Past Medical and Surgical History: None. No history of any prior trauma. All vaccinations were up to date.

Past Ob/Gyn History: The patient was G_2P_{2002} – Both children were normal spontaneous vaginal deliveries at full term without any pre-, peri-, or post-natal complications of mother or children. The patient stated she had occasional pain during intercourse which she attributed to vaginal dryness.

Allergies: No known drug, food, or seasonal allergies.

Medications: Ibuprofen 600mg prn for pain.

Family Medical History: Father, age 78, with HTN. Mother, age 76, with Type II diabetes (controlled with oral medications). Brother, age 47, in good health.

Social History: 50-year-old female, married 27 years. Two children, grown (ages 25 and 23) and not living in the household. Patient denied ever smoking or using illicit drugs. The patient stated she drank wine very rarely and only on social occasions.

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Review of Systems

Non-contributory except as noted above in the chief complaint and history of present illness. The patient denied any fever, chills, nausea, vomiting, diarrhea, or other constitutional symptoms.

Physical Examination

General: well-hydrated and well-nourished female, A+0 X 3, in what would appear to be a moderate degree of distress due to her pain.

Neurological: Deep tendon biceps, triceps, brachioradialis, patellar, and Achilles tendon reflexes were all 2+ bilaterally; normal gait; heel, toe, and tandem walk were all normal. No motor or sensory deficits were appreciated. Romberg and Spurling tests were negative.

Osteopathic Structural Examination

Structural exam revealed a positive standing flexion test 1½" on the left, confirmed by loss of passively induced left sacroiliac motion. Spring test was negative. Muscle spasm was appreciated at the quadratus lumborum muscle on the right. Physical examination also revealed positive anterior lumbar tender points at AL1L, AL2L, as well as findings of L1-5NRLSR. The patient's left iliac crest appeared higher with the patient standing.

Medical Decision Making

Diagnosis: Muscle Spasm; Lumbar Spine Pain; Leg Length Inequality; Somatic Dysfunction Lumbar Spine; Somatic Dysfunction Hip/Pelvis

Initial Treatment Plan and Discussion of Treatment Course

Osteopathic Manipulative Treatment (OMT) to the quadratus lumborum muscle consisted of Prone Pressure with Counterleverage Soft Tissue techniques.⁷ This technique was applied to the hypertonicty/spasm on the right and a decrease in the hypertonicity of the quadratus was noted. Given this positive response to treatment of the quadratus lumborum using soft tissue, it is likely that the hypertonicity of quadratus was the etiology for the underlying somatic dysfunction; however, the soft tissue techniques did not alleviate the group curve which was addressed as follows. The anterior lumbar counterstrain tender points were treated using anterior lumbar region Counterstrain techniques to each of the AL1L and AL2L tenderpoints.7 The lumbar spine somatic dysfunctions were treated by muscle energy technique (post-isometric relaxation) with the patient

in lateral recumbent position⁷ and the innominate anterior (hip/pelvis) somatic dysfunction was treated with combined reciprocal inhibition and muscle contraction mobilize articulation with the patient in lateral recumbent position.⁷ The lumbar spine and innominate somatic dysfunctions were normalized; tenderness was markedly reduced. The apparent leg length inequality spontaneously resolved following treatment of the innominates, thus illustrating a likely innominate etiology. Given the tight time frame to fully evaluate and treat the patient, the patient was scheduled for follow-up in one week.

The decision to use soft tissue techniques for treating the paraspinal muscles follows long-held ideas regarding the application of these techniques^{7,2,3} for myofascial structures and tissues. The spontaneous resolution of the patient's tender points at AL4R and AL4L is fully consistent with the literature.^{7,4,5} Immediately following treatment, the treated tissues were normalized and the patient's symptoms had resolved. The patient was counseled to increase water intake and to take Ibuprofen 600 mg with food TID for 5 days for pain or inflammation secondary to any treatment reaction arising within the next 24-48 hours. With respect to treating quadratus, as the muscle attachments are nearly in line with neutral mechanics, this tends to produce a group curve, L1-5NR_LS_R, as was found.

Follow-up Visit Examination

The patient returned for re-evaluation one week later. She stated that her back pain had returned after two days but was "not as bad." She described the pain as achy, constant, 4-5/10, with intermittent radiation to the groin. She stated that the pain decreased to 3/10 with Ibuprofen 600mg prn.

Structural exam revealed recurrence of a positive standing flexion test 1" on the left, confirmed by loss of passively induced left sacroiliac motion. Spring test was negative. No quadratus muscle hypertonicity/spasm was appreciated. The patient's posture was sidebent to the left and slightly flexed at the waist while standing, Physical examination also revealed positive anterior lumbar tender points at AL1L, as well as findings of L1FR_LS_L. The patient's left iliac crest again appeared higher with the patient standing, hypertonicity of the piriformis muscle on the right was appreciated. Thomas test was positive on the left. Iliopsoas strength testing was 5/5 bilaterally, **Follow-up Visit Diagnosis:** Muscle Spasm – recurrent; Lumbar Spine Pain - recurrent Leg Length Inequality – recurrent; Piriformis Syndrome – new; Psoas Syndrome – new; Somatic Dysfunction Lumbar Spine – recurrent; Somatic Dysfunction Hip/Pelvis – recurrent

Follow-up Treatment Plan and Discussion of Treatment Course

The recurrence of the patient's symptoms indicates that the underlying etiology had not been fully addressed by the initial treatment. The presence of the somatic dysfunction at L1 was possibly "masked" by the hypertonicity/spasm of quadratus with the concomitant neutral Fryette Type I group dysfunction treated at the initial visit. The positive Thomas test and ipsilateral L1 dysfunction both support the diagnosis of psoas syndrome.¹² The presence of a psoas syndrome made sense so soon after a 51/2 hour transcontinental airplane flight. The psoas was treated with muscle energy reciprocal inhibition technique⁷ following which the patient was able to stand erect and there was spontaneous resolution of the AL1L Counterstrain tenderpoint, which is consistent with the L1 somatic dysfunction having an psoas etiology.¹² The anterior lumbar counterstrain tenderpoint was treated using anterior lumbar region Counterstrain techniques to the AL1L tenderpoint.7 The apparent acute Piriformis syndrome was treated with Counterstrain technique.⁷ The left innominate anterior (hip/pelvis) somatic dysfunction was again treated with combined reciprocal inhibition and muscle contraction mobilize articulation with the patient in lateral recumbent position.7 The innominate somatic dysfunction was again normalized and again tenderness was markedly reduced; the pain to the groin had resolved. The apparent leg length inequality again spontaneously resolved following treatment of the innominates, further supporting a likely innominate etiology. Given the tight time frame, the patient was scheduled for follow-up in 5 days.

Third Visit Examination

The patient returned for re-evaluation 5 days later. She stated that her back pain had returned after three days but was about the same as the last (follow-up/second) visit. She again described the pain as achy, constant, 4-5/10, with intermittent radiation to the groin. She stated that the pain was still decreased to 3/10 with Ibuprofen 600mg prn.

Structural exam revealed recurrence of a positive standing flexion test, again 1" on the left, again confirmed by loss

of passively-induced left sacroiliac motion. Spring test was again negative. Again, no quadratus muscle hypertonicity/spasm was appreciated. The patient's posture was again sidebent to the left and slightly flexed at the waist while standing. Physical examination again revealed positive anterior lumbar tender points at AL1L, as well as again findings of L1FR_LS_L. The patient's left iliac crest once again appeared higher with the patient standing. Hypertonicity of the piriformis muscle on the right was again appreciated. Thomas test was again 5/5 bilaterally.

Third Visit Diagnosis: Muscle Spasm – recurrent; Lumbar Spine Pain – recurrent; Leg Length Inequality – recurrent Piriformis Syndrome – recurrent; Psoas Syndrome – recurrent; Somatic Dysfunction Lumbar Spine – recurrent; Somatic Dysfunction Hip/Pelvis – recurrent

Third Treatment Plan and Discussion of Treatment Course

Given the success of OMT in reducing the patient's pain, she was again treated as described in the follow-up treatment plan and discussion above; however, given the recurring nature of the patient's symptoms, despite alleviating the patient's pain (temporarily) with OMT, a different etiology from musculoskeletal needed to be explored. The presence of a psoas syndrome almost 2 weeks after the transcontinental flight lessened the likelihood that the long duration of being seated on an airplane was the pathogenesis for her condition. Equally concerning was the recurrence of the radiation of her pain to the groin. Organic etiologies for low back pain with psoas syndrome include appendicitis, sigmoid colon dysfunction, uretal calculi or dysfunction, abdominopelvic adhesions, endometriosis, salpingitis, and solid or cystic benign ovarian neoplasms. The differential diagnosis is not limited to the above.¹³

The patient was referred to Radiology and Gynecology at the medical center in her health plan for imaging and consultation to rule-out gynecologic etiologies. Plain x-rays of the abdomen and pelvis failed to reveal any calculi or radio-opaque masses. Gynecologic evaluation, confirmed by pelvic ultrasound, revealed the presence of a 4cm cystic mass on the left ovary. This was removed laparoscopically and was determined to be benign. Endometrial biopsy was negative.

Post-op Visit Examination

The patient was seen 10 days following her procedure (3 days prior to her overseas move). She stated that other than some minor pain at the incision, her other symptoms "seemed to be gone." She stated that she was controlling her incision pain with acetaminophen 1000mg BID-TID prn.

Structural examination revealed the patient standing erect, without any flexion or sidebending. No iliac crest height discrepancies were appreciated. Standing flexion test and seated flexion test were negative. No paraspinal muscle hypertonicities were appreciated. There was slight tenderness at the AL1L counterstrain tenderpoint. The surgical incision was well-healed without any signs of post-operative inflammation, infection, or complications.

Post-op Visit Diagnosis: Left Ovarian Cyst s/p Laparoscopic Ovarian Cystectomy; Somatic Dysfunction Lumbar Spine – secondary to ovarian cyst

Post-op Treatment Plan and Discussion of Treatment

The patient's anterior lumbar counterstrain tenderpoint was treated using anterior lumbar region Counterstrain techniques to the AL1L tenderpoint.¹ The tenderness resolved.

Discussion

The differential diagnosis regarding the etiology for low back pain is varied and includes both musculoskeletal and organic etiologies. OMT has been shown to be effective in treating low back pain and is included in National Guidelines for treatment.¹⁴ OMT having been successful in resolving the patient's symptoms typically supports a musculoskeletal etiology; however, when confronted with recurrence of symptoms in spite of repeated successful resolution of these symptoms with OMT, the physician should suspect an organic etiology.¹³ As discussed above, this patient's recurring symptoms of low back pain, radiation of pain to the groin, and psoas syndrome have been reported as associated with appendicitis, sigmoid colon dysfunction, uretal calculi or dysfunction, abdominopelvic adhesions, endometriosis, salpingitis, and solid or cystic benign ovarian neoplasms.¹³ Leg length discrepancy has been reported to be associated with ovarian cyst formation on the side of the longer leg. Following the biomechanical model, spasm of the psoas muscle will sidebend the trunk to the side of spasm and flex the trunk forward at the waist. The net effect on the lumbar

segments is a Fryette type II dysfunction, typically affecting L1 or L2 with the segment flexed, rotated, and sidebent to the side of psoas spasm.¹³ Chronic ovarian dysfunction and inflammation can cause psoas spasm by direct irritation of the pelvic portion of the muscle.^{15,16} This patient's signs and symptoms, that is, increased pain associated with standing or walking, positive Thomas test, non neutral (flexed, in this case) somatic dysfunction, piriformis muscle hypertonicity contralaterally (on the right), and psoas syndrome ipsilaterally (on the left), all support the presence of the gynecological etiology.

Ovarian cysts are usually asymptomatic; however, the size of this patient's cyst (4cm) may have caused pressure against the nerves in the perineum leading to L1 and L2.¹⁷ While the osteopathic literature also points to the presence of Chapman's points as an aid in diagnosis, the lack of proven sensitivity of Chapman's Reflexes, which point to the abdomen in general, ovaries, and urethra,¹⁶ would only lead to the differential diagnosis, as was determined without their use in this case. This points to the

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need for more definitive epidemiological research regarding sensitivity and specificity of Chapman's Reflexes.

Conclusion

This case demonstrates the importance of the osteopathic physician understanding viscerosomatic dysfunctions and the efficacy of the osteopathic approach to arriving at correct diagnoses. This case is also consistent with a previously published study by Licciardone and associates at the Osteopathic Research Center that demonstrated that "increased OMT of the pelvis in females likely reflects treatment of patients with common conditions such as low back pain and possibly a uniquely osteopathic approach to management of reproductive health issues or gynecologic conditions."^{18,19} This case clearly illustrates how the osteopathic approach to a patient with recurring low back pain following OMT resulted in diagnosis of the underlying gynecological organic etiology for this patient's symptoms.

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