

Osteopathic Manipulative Treatment for Colonic Inertia

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Financial Disclosures:
None reported.

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Submitted
September 29, 2012;
revision received
November 14, 2012;
accepted
December 4, 2013.

Surgical treatment options for patients with colonic inertia are costly and do not always relieve the pain associated with the condition. The author describes a case of a 41-year-old woman with colonic inertia who received osteopathic manipulative treatment targeted at the neuromusculoskeletal and gastrointestinal systems. The patient reported temporary improvement in pain and bowel function without pharmacotherapy or surgical intervention. Osteopathic manipulative treatment should be considered in patients with visceral as well as neuromusculoskeletal symptoms.

J Am Osteopath Assoc. 2013;113(3):216-220

The accepted treatment for patients with colonic inertia is total abdominal colectomy with ileo-rectal anastomosis.¹ Although this surgical approach typically relieves constipation, it has been criticized for inadequately improving quality of life in patients with this condition.¹ Abdominal pain in particular may not be affected by the surgical procedure. These findings suggest that colectomy may not be the best treatment option for patients with colonic inertia. Colonic inertia is one medical problem that may benefit from a distinctly osteopathic approach.

Although the medical literature offers a variety of definitions of colonic inertia, a literature review by Bassotti et al² provides a summation of diagnostic criteria: (1) severe functional constipation (as defined by Rome Criteria); (2) no outlet obstruction; (3) delayed colonic transit with radiopaque markers distributed throughout the colon; (4) manometric or electromyographic documentation of no to little colonic motor activity; and (5) no response to pharmacologic stimulation during colonic motility recording.

The mechanism of colonic inertia may be related to an increased level or distribution of serotonin in the colonic mucosa.³ It has been suggested that the increased quantity of serotonin cells leads to an increased quantity of enterochromaffin cells.⁴ Colonic inertia has been shown to be associated with altered electrical activity that contributes to motility,⁵ and on further investigation it was noted that the colons of patients with total colonic inertia demonstrated an absence of interstitial cells of Cajal, which are the cells responsible for motor activity of the colon via generation of electrical waves.⁶

In the current article, I present the case of a 41-year-old woman with colonic inertia who received osteopathic manipulative treatment (OMT). After 6 weeks, the patient reported temporary improvement of pain and normalization of bowel function.

Report of Case

Presentation

A 41-year-old woman presented to my clinic for osteopathic manipulative medicine (OMM) evaluation for back pain of a few months' duration. She was referred by her primary care physician. She described pain that started in the middle of her low back and radiated into her buttocks, down the right leg to her knee, and down the left leg to her ankle. She indicated that both knees were painful and intermittently went numb. The patient described the pain as a constant pins-and-needles sensation with a pulsing sensation in her buttocks. She denied any inciting event or injury that preceded the pain. The patient indicated that the pain worsened at night and kept her awake. The pain improved with sitting in a slouched position and use of ibuprofen. The pain worsened with laying down or standing up. The patient had seen a chiropractor and massage therapist years earlier for neck and shoulder pain, but the therapies were not effective in providing pain relief.

Review of systems was notable for earache, chest discomfort, constipation, urinary frequency, back and

joint pain, and headaches. Results from radiography completed by the patient's primary care physician before the patient's presentation to the clinic revealed mild disk space narrowing and potentially minimal spurring at vertebrae L4-L5.

History

The patient's past medical history included intermittent seizures from the ages of 30 to 38 years, during which time the patient was seeing a neurologist. She had been seizure free since approximately age 38 years. The patient had also received a diagnosis of colonic inertia. She was refractory to all pharmacologic treatment, and motility studies documented delayed transit. The patient's gastroenterologist had offered her a referral for colectomy, but the patient did not wish to pursue surgical intervention.

Past surgical history was remarkable for 2 dilation and curettage procedures, 2 laparoscopic procedures, and endometrial ablation. Trauma history was notable for the patient being hit in the right leg by a line drive with a baseball approximately 2 years prior to OMM evaluation. The patient also reported a couple of motor vehicle accidents when she was in her 30s but denied any substantial injuries from the accidents. The patient's family history was notable for colon and uterine cancer but was otherwise unknown.

The patient indicated that her job was not physically demanding. She denied tobacco smoking and illicit drug use and reported having a couple of alcoholic drinks per week. The patient had no known drug allergies, and home medications included a multivitamin and as-needed ibuprofen for pain relief (600-800 mg 3-4 times/d). She was not taking any seizure medications at the time of the initial visit.

Physical Examination

The patient's vital signs were normal. Physical examination revealed occipitoatlantal hypertonicity and abnormal tissue texture change with asymmetry in the

cervical paraspinal muscles. The patient's chest wall had reduced excursion of the rib cage, with respiration most notable in the lower right ribs. The abdomen was soft and without tenderness or distension. Her back had grossly reduced mobility, as well as tenderness, muscle hypertonicity, and asymmetric tissue texture changes at the thoracic and lumbar levels. The patient was alert and cooperative with normal mood and attention span. Focal neurologic examination revealed normal strength in the bilateral lower extremities with diminished but symmetric lower extremity reflexes.

Osteopathic Structural Examination

Osteopathic structural examination revealed a sphenobasilar synchondrosis compression in the cranial region. The C2 vertebra was flexed, rotated, and sidebent left. Ribs 1 were bilaterally in inhalation. Ribs 10 through 12 on the right were exhaled. The L2 vertebra was flexed, rotated, and sidebent left. Examination of the pelvis showed a right-sided superior innominate shear. The sacrum had a right-on-left sacral torsion. Fascial restriction was present in the left and right hemidiaphragms and in the superior and inferior mesenteric ganglia. The transverse abdominal muscle demonstrated fascial drag to the left.

Diagnoses and Treatment

Diagnoses included somatic dysfunction of the head, the cervical spine, the rib cage, the abdomen, and the lumbar, pelvic, and sacral regions. Diagnoses also included strain of the sacroiliac and lumbosacral regions with myofascial strain to associated structures, including the head, neck, ribs, and abdomen.

The patient was treated using OMT systems, including high-velocity, low-amplitude; osteopathy in the cranial field (OCF); myofascial release; facilitated positional release; balanced ligamentous tension; and visceral manipulation. The OCF techniques included compression of the fourth ventricle. Because the collateral ganglia in the abdomen have some influence on regional

visceral dysfunction,⁷ visceral manipulation included a ventral abdominal release and inhibitory pressure directed at the superior and inferior mesenteric ganglia.

It was suspected that the cranial and upper cervical somatic dysfunctions represented parasympathetic influence to the colon from the left vagus nerve, which provides parasympathetic innervation to the gastrointestinal tract from the lesser curvature of the stomach to the right half of the colon. The sacral somatic dysfunction was suspected to represent dysfunction of the pelvic splanchnic nerves, which provide parasympathetic innervation to the left half of the colon.⁷ In addition, the somatic dysfunction of the transverse abdominal muscle was suspected to represent fascial drag originating in the deep epaxial core muscles such as the quadratus lumborum, as well as the origin of the mesentery, which is fascially continuous with the fascia of the deep epaxial core muscles and the lower 3 lumbar spinal segments.^{7,8}

There is a relationship between the regions of abdominal, back, and visceral dysfunction. Dysfunction of the parasympathetic region is associated with dysfunction at the sacral, C2, and occipitoatlantal regions, representing involvement of the vagus and pelvic splanchnic nerves.

The patient stated that her back pain felt better after OMT. She was advised to consume plenty of water and continue with as-needed ibuprofen. Common treatment reactions such as soreness, temporary increase in discomfort, and fatigue were also reviewed. She was scheduled for follow-up 1 month later.

First Follow-up

At follow-up 1 month after her initial visit, the patient reported an overall improvement in her pain and greater ability to ambulate. She reported continued pain in the low back, particularly the left lumbosacral region, as well as pain in the right forehead. The patient reported reduced pain in her knees. Her bowel function had not changed. She had tried a new medication prescribed by her gastroenterologist but did not tolerate the side effects, and her gastroenterologist recommended pelvic floor therapy.

Review of systems was notable for abdominal bloating and back pain but was otherwise unremarkable. Physical examination was notable for hypertonicity of the occipitoatlantal region; asymmetric tissue texture changes, tenderness, and hypertonicity of the cervical paraspinal muscles; reduced excursion of the rib cage with respiration particularly in the upper right region; mild tenderness to palpation in the abdomen without guarding or rebound; a hypertonic left quadratus lumborum muscle; and reduced mobility, tenderness, hypertonicity, and tissue texture changes of paraspinal muscles at the cervical, thoracic, and lumbar spinal levels. Neurologic examination revealed equal strength in the lower extremities.

Osteopathic structural examination revealed a right sphenobasilar synchondrosis torsion. The C3 vertebra was flexed, rotated, and sidebent right. Rib 2 on the right was exhaled. Examination findings also included a flexed, rotated, and sidebent right T4 vertebra and a flexed, rotated, and sidebent right L5 vertebra. Also found were left innominate posterior rotation, right-on-right sacral torsion, myofascial strain of the right serratus anterior muscle, ligamentous strain of the right talus, myofascial strain of the left quadratus lumborum muscle, fascial restriction of the right hemidiaphragm, and decreased motility of the stomach and liver.

It was suspected that the patient's back strain was secondary to continued autonomic involvement of the superior mesenteric ganglia, pelvic splanchnic, and vagus areas, and that thoracic cage movement was linked to her core strains involving the abdominal, diaphragmatic, and visceral structures.

Her diagnoses included somatic dysfunction of the following regions: head, cervical, upper extremity, rib cage, thoracic, abdomen, lumbar, pelvic, sacral, and lower extremity. In addition, the patient was diagnosed as having lumbosacral strain, rib strain, and sacroiliac strain.

The patient was treated using the OMT systems of high-velocity, low-amplitude; muscle energy; OCF; myofascial release; facilitated positional release; balanced ligamentous tension; and visceral manipulation.

Again, the patient stated her pain had improved immediately after OMT.

The patient was counseled on seeking additional alternative modalities for the management of visceral dysfunctions such as acupuncture and homeopathy. She was also provided with a handout on Fulford exercises and was instructed to perform the exercises 1 to 2 times daily.⁹ She was scheduled for re-evaluation in 2 weeks.

Second Follow-up

Seventeen days after her initial follow-up, the patient reported that her symptoms had continued to improve since her previous visit and that she had tried to start exercising again. She went out running and afterwards experienced a return of pain on the right side of her low back radiating down the right side of the right leg above the knee. She denied any numbness or tingling. The pain was improved with sleeping and worsened with prolonged sitting. Additionally, the patient reported that for 2 weeks after her last appointment, her bowel function had normalized and her abdominal pain had improved. Over the few days preceding the second follow-up appointment, however, the patient's abdominal pain and bloating started to return.

Physical examination was notable for occipitoatlantal hypertonicity; abnormal tissue texture change, asymmetry, tenderness, and hypertonicity of the cervical paraspinal muscles; nontender abdomen; reduced mobility, tenderness, hypertonicity and tissue texture changes of paraspinal muscles at the cervical, thoracic, and lumbar levels; and hypertonic quadratus lumborum muscle on the right. Neurologic examination revealed equal normal strength in both lower extremities and some pain with a straight-leg raise on the right side.

Osteopathic structural examination revealed a left sidebending rotation at the sphenobasilar synchondrosis. The occipitoatlantal region was sidebent left, rotated right; the C1 vertebra was rotated left; the T10-T12 vertebrae were neutral, sidebent right, and rotated left; and the L1 vertebra was flexed, rotated, and sidebent left.

Additional findings included a right innominate upslip in the pelvis, a right-on-right sacral torsion, ligamentous strain of the left talus, and fascial drag of the transverse abdominal muscle to the left.

Diagnoses included somatic dysfunction of the head and the cervical, thoracic, abdomen, lumbar, pelvic, sacral, and lower extremity regions. Lumbosacral strain and sacroiliac strain were also diagnosed.

Osteopathic manipulative treatment techniques, including myofascial release, facilitated positional release, balanced ligamentous tension, and articulatory, were performed. Improvement was noted in the objective restrictions, and the patient stated the her back pain improved after OMT.

Her lumbosacral and sacroiliac strains were most likely aggravated by running. The patient was counseled on body mechanics and mindfulness regarding her running form to decrease injury, including modifying her foot strike and reviewing freely available running literature online. She was advised to use acetaminophen and ibuprofen as needed and to follow up in 1 month.

Of particular importance at the second follow-up visit was the patient's reported complete normalization of bowel function for a period of 2 weeks with no intervention other than OMT. The continuity of the fascial of the musculoskeletal system and gastrointestinal system seemed to be playing a role in the patient's colonic inertia. Because of a change in practice location, I was unable to document further follow-up with this patient.

Comment

Andrew Taylor Still, MD, DO, wrote that constipation leads to disturbance of the nervous system and that local anatomy should be evaluated and addressed, such as the fascia, mesentery, and peritoneum "being held in an irritable strain."¹⁰ Kuchera and Kuchera⁷ discuss persistent hypersympathetic activity from visceral afferent activity due to visceral irritation in systemic diseases. Sympathetic facilitation from the colon is reflected in the T10-

L2 disruption, with the T10-T12 vertebrae associated with the right half of the colon and the T12-L2 vertebrae associated with the left half of the colon. The patient in the present article was diagnosed as having somatic dysfunction in the T10-L2 distribution as well as lower rib dysfunction, which could represent a viscerosomatic reaction to her colonic inertia.

The present case demonstrates how the application of OMM extends beyond the musculoskeletal system. The musculoskeletal system is closely related to the visceral organs of the body. Thus, in practice, the osteopathic physician may see and treat patients referred for musculoskeletal pain and, during the course of treatment, incidentally note improvements in other conditions within the patient's body that the allopathic medical system may label as "disease processes" or "chronic medical problems." Such improvements may not be incidental but rather a reflection of the reciprocal relationship between structure and function that exists within the body.¹¹

Conclusion

Osteopathic manipulative treatment is a viable approach to treating patients with functional bowel diseases such as colonic inertia. The efficacy of OMT for colonic inertia was demonstrated in the present case, in which the patient achieved temporary normalization of colon function for a full 2 weeks after receiving OMT. Osteopathic manipulative treatment is a less-invasive and less-costly treatment option than colectomy for patients with colonic inertia.

Acknowledgments

I thank and acknowledge the following individuals who have made significant personal and professional contributions to my understanding and practice

of osteopathic medicine: E. Hunter Sharp, DO; K. Emily Redding, DO; Daniel Kary, DO; Joseph Field, DO; Richard Feely, DO; Bernadette Kohn, DO; and Dane Shepherd, DO.

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Editor's Note: In this article, the author uses the term *osteopathy in the cranial field* to describe the palpatory techniques and osteopathic manipulative treatment used to assess cranial dysfunction and to treat patients for such dysfunction. The style guidelines of *The Journal of the American Osteopathic Association* and AOA policy prefer the term *cranial osteopathic manipulative treatment to osteopathy in the cranial field*. For this article, the author requested that the term *osteopathy in the cranial field* be retained.

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