

# Imaging Evidence Demonstrating Effectiveness of Osteopathic Visceral Manipulation Techniques in Treating Pseudo-Obstruction

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CLINICAL PRACTICE

## Abstract

This report describes the case of a 66-year-old afebrile woman seen on the hospital inpatient service with nausea, vomiting, bloating, and constipation for 5 days prior to admission. The patient was diagnosed with idiopathic acute small bowel pseudo-obstruction by gastroenterology.

The epidemiology of acute small-bowel pseudo-obstruction is briefly reviewed. Osteopathic manipulative treatment (OMT) was performed on the patient using mostly abdominal and visceral manipulation techniques.

This case represents the first report of imaging evidence that demonstrates the effectiveness of osteopathic visceral manipulation techniques in successfully treating patients who have acute intestinal pseudo-obstruction.

## Introduction

Problems with defecation in adults increase over 65 years of age. Reasons for absence of bowel movements include neurologic disorders (e.g., multiple sclerosis, autonomic neuropathy, etc.), endocrine or metabolic disorders (e.g., hypothyroidism, hyperthyroidism, diabetes mellitus, etc.), malignancies, and dietary issues. Common reasons include obstruction of the small intestines or colon or constipation.<sup>1</sup> McEntee and associates found the incidence rates for obstruction due to adhesions, malignancies, and strangulated hernias to be 32%, 26%, and 25%, respectively.<sup>1</sup> Carrerio states that plain abdominal x-rays can usually rule out obstruction.<sup>2</sup> The value of computed tomography (CT) as a diagnostic tool in evaluating small-bowel disorders has been reported in the medical literature.<sup>3,4</sup> Obstruction and pseudo-obstruction have been reported in patients with Crohn's disease; the reasons for this are not understood.<sup>5</sup>

Garrigues and associates found the prevalence of constipation ("infrequent passage of hard, dry stools"<sup>6(p1282)</sup>) among Spanish adults to vary between 14% and 19%.<sup>7</sup> A systematic review of the epidemiology of constipation in North American adults published by Higgins and Johanson found the prevalence to vary similarly between 12% and 19%; they also found a gender prevalence female-to-male ratio of 2.2:1.<sup>8</sup> In an epidemiologic study of chronic constipation,<sup>6(p1286)</sup> Pinto-Sanchez and Bercik cited a Canadian

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study that found not even one-half of the patients met the diagnostic criteria for functional constipation.<sup>9</sup>

Another differential diagnosis to be considered for these symptoms is pseudo-obstruction vs constipation. McEntee and associates found the incidence rates for pseudo-obstruction vs constipation (fecal impaction) to be 2% vs 3%, respectively.<sup>1</sup> Carrerio stated, "Pseudo-obstruction occurs in cases of dysmotility and may be secondary to a systemic disease process."<sup>2</sup> Pseudo-obstruction may be either acute or chronic and may be found in either the small intestine or the colon. Chronic pseudo-obstruction of the intestine is extremely rare, with prevalence approximately 1 case per 100,000 population.<sup>10</sup> Acute pseudo-obstruction of the colon (Ogilvie syndrome) is usually accompanied by dilatation of the colon without evidence of mechanical obstruction.<sup>11,12,13</sup> After analyzing 400 cases,

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Vanek and Al-Sulti found 49% were postoperative, 45% were associated with medical co-morbidities, and 6% were idiopathic.<sup>14</sup>

Stephens first published a case series reporting acute obstruction of the intestines but without any findings of mechanical obstruction; this condition came to be known as acute pseudo-obstruction of the intestines.<sup>15</sup> Legge and associates reported 8 cases associating acute pseudo-obstruction of the intestines with amyloidosis.<sup>16</sup> A case report by Koppelman and associates at the Mayo Clinic more recently affirmed these findings.<sup>17</sup> Tada and associates reported different sites of amyloid deposits depended upon the protein type.<sup>18</sup>

### Case Report

A 66-year-old woman presented to the emergency department with nausea, vomiting, bloating, and constipation and was admitted to the inpatient service. The patient had been having these symptoms for 5 days prior to admission.

The patient was afebrile and had no history of recent surgeries, malignancies, neurologic, endocrine or metabolic disorders, or amyloidosis. Laboratory studies were negative.

CT imaging performed on Day 1 revealed the presence of stool in the small intestine but not in the colon (*Figures 1-3*). No dilatation of either the small or large bowel was appreciated.

Gastroenterology consult diagnosed the patient with idiopathic small bowel pseudo-obstruction. Nasogastric tube was placed and

suction revealed dark green fluid. Nasogastric suction was continued and monitored with plain x-ray imaging for 7 days (see *Figures 4-9*), at which time it was noted that there was no change in the patient.

On the seventh day post-admission, the decision was made to perform exploratory surgery and intervention. The evening prior to surgery, the first author performed osteopathic manipulative treatment (OMT) on the patient using mostly abdominal and visceral manipulation techniques.

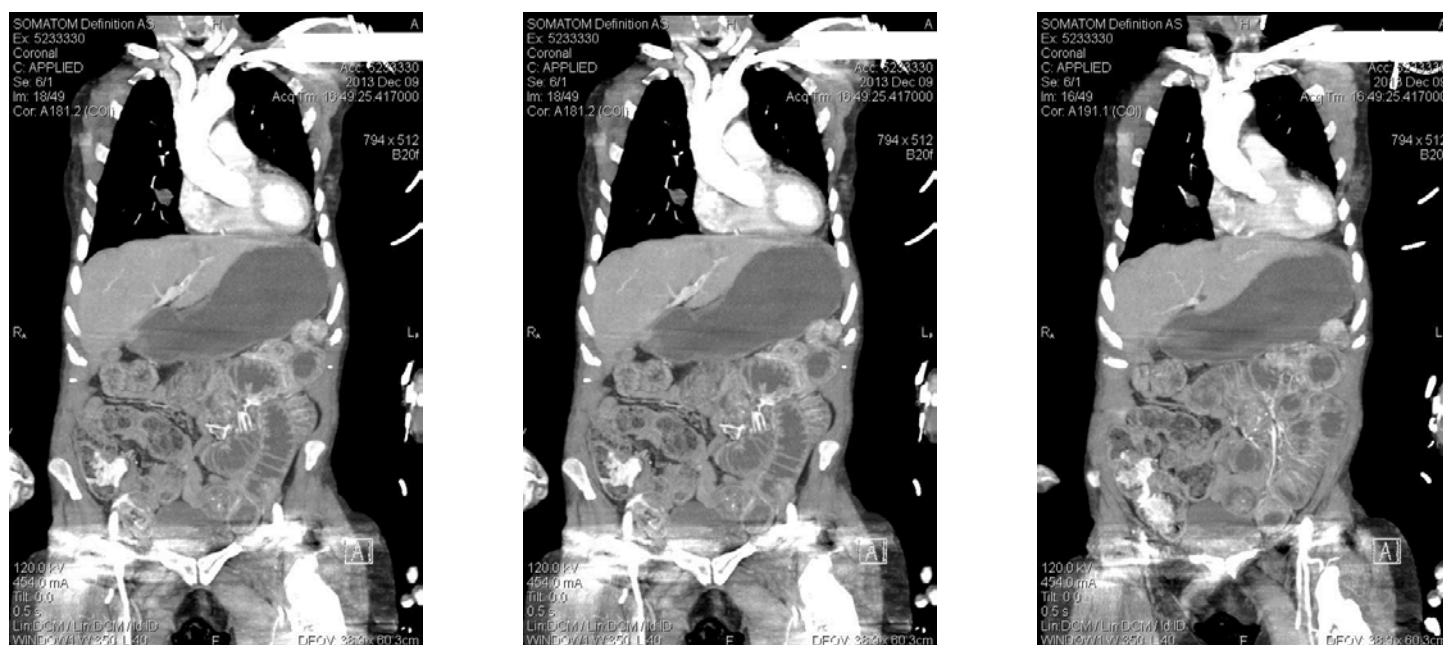
Abdominal myofascial techniques,<sup>19(p911)</sup> visceral techniques<sup>20(p1080-1082)</sup> (including mesenteric release<sup>21(p 528-532)</sup>), as well as sub-occipital release,<sup>21(p92)</sup> thoracic myofascial,<sup>21(p135)</sup> and lumbar myofascial techniques,<sup>21(p141)</sup> were performed.

The time spent treating the patient's neck and back was less than approximately 5 minutes total; her tissues released very quickly. Approximately 50 minutes was spent performing very gentle myofascial work on her abdomen to help free up her bowels, open up her sphincters, release her diaphragm, and calm down her celiac, superior mesenteric, and inferior mesenteric ganglions. The patient's bowels started moving pretty quickly, indicated by audible abdominal sounds that were rapid in onset and appreciated without auscultation with a stethoscope.

The following morning, the patient was no longer vomiting, her nasogastric tube was no longer pumping out dark green fluid (it

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**Figures 1-3.** CT imaging performed on Day 1 revealed the presence of stool in the small intestine but not in the colon.



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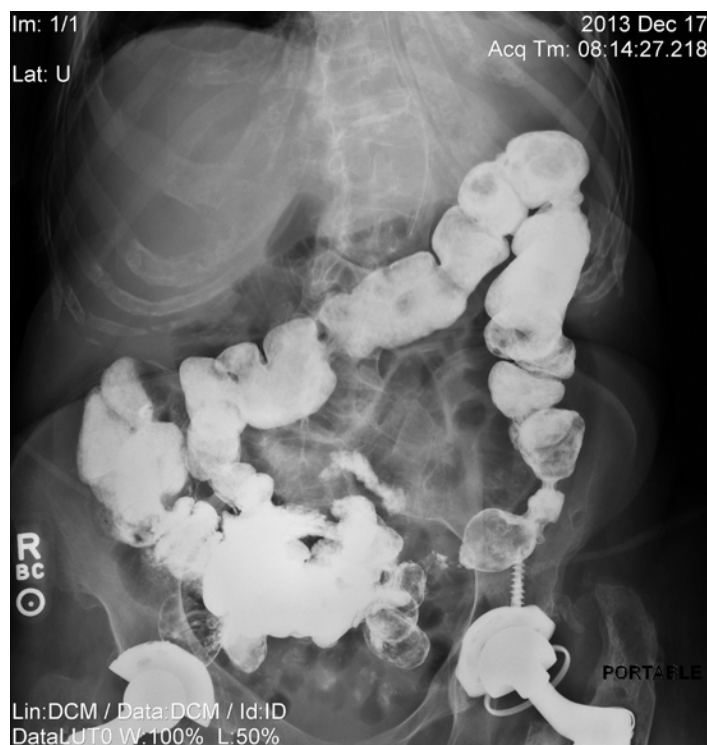
was now a very light brown/yellow), the volume of fluid being pumped out had significantly decreased, and the patient stated she was “feeling much more comfortable.”

X-ray imaging revealed movement of the stool into the colon. No stool was appreciated in the small bowel (*Figure 10*). The patient hadn’t had a bowel movement yet, but the surgery was cancelled.

**Figures 4-9.** Nasogastric suction was continued and monitored with plain x-ray imaging for 7 days. There was no movement in the bowels during that time.



**Figure 10.** The day after osteopathic treatment was administered, X-ray imaging revealed movement of the stool into the colon. No stool was appreciated in the small bowel.



Unfortunately, the patient’s family decided to have her taken to a different hospital after the medical team met with her that morning, so she was lost to follow up.

## Discussion

The decisions to initially treat this patient with medication and decompression and then to perform surgery were fully consistent with the National Institutes of Health health information published by the National Institute of Digestive and Kidney Diseases.<sup>22</sup> Mann and associates reported that pharmacologic therapy is usually not effective in treating idiopathic intestinal pseudo-obstruction and that the efficacy of surgical intervention is unclear.<sup>23</sup>

The role of osteopathic visceral manipulation has been previously documented,<sup>24</sup> especially with respect to disorders of the lower gastrointestinal tract.<sup>25</sup> The visceral techniques performed in this case included those standard techniques taught in osteopathic medical schools.<sup>22</sup>

The temporal relationship regarding the movement of stool from the small intestines to the colon with the performance of the osteopathic visceral manipulation supports the effectiveness of treating

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the patient with idiopathic acute intestinal pseudo-obstruction with OMT.

The imaging evidence further supports the effectiveness of treating this patient with OMT.

## Comment

This case shows how osteopathic management, specifically the application of visceral manipulation, provides a unique perspective for patient care.

The patient's symptoms were consistent with idiopathic acute small-bowel pseudo-obstruction. Visceral manipulation may have been responsible for resolving any visceral somatic dysfunction; the rapid resolution of the patient's symptoms and the imaging demonstrating movement of stool from the small intestine to the colon supports this.

This case represents the first report of imaging evidence that demonstrates the effectiveness of osteopathic visceral manipulation techniques in successfully treating acute intestinal pseudo-obstruction.

## References

1. McEntee G, Pender D, Mulvin D, et al. Current spectrum of intestinal obstruction. *Br J Surg*. 1987;74(11):976-980.
2. Carrerio JE. *An Osteopathic Approach to Children*. 2nd ed. London: Churchill Livingstone Elsevier; 2009: 236-237.
3. Paulsen SR, Huprich JE, Fletcher JG, Booya F, Young BM, Fidler JL, et al. CT enterography as a diagnostic tool in evaluating small bowel disorders: Review of clinical experience with over 700 cases. *RadioGraphics* 2006;26:641-662
4. Frager D, Medwid SW, Baer JW, Mollinelli B, Friedman M. CT of small-bowel obstruction: Value in establishing the diagnosis and determining the degree and cause. *AJR* 1994; 162:37-41.
5. Kastanos KH, Tsianos VE, Maliouki M, Adamidi M, Vagias I, Tsianos EV. Obstruction and pseudo-obstruction in inflammatory bowel disease. *Annals of Gastroenterology*. 2010; 23(4):243-256.
6. LaMont JT, Isselbacher KJ. Diseases of the small and large intestine. In: *Harrison's Principles of Internal Medicine (12<sup>th</sup> edition)* New York, NY: McGraw-Hill, Inc. 1991:1281-1289.
7. Garrigues V, Galvez C, Ortiz V, Ponce M, Ponce J. Prevalence of constipation: agreement among several criteria and evaluation of the diagnostic accuracy of qualifying symptoms and self-reported definition in a population-based survey in Spain. *American Journal of Epidemiology*. 2004;159(5):520-526.
8. Higgins PDR, Johanson JF. Epidemiology of constipation in North America: a systematic review. *American Journal of Gastroenterology*. 2004;99(4):750-759.
9. Pinto-Sanchez ML, Bercik P. Epidemiology and burden of chronic constipation. *Canadian Journal of Gastroenterology*. 2011; 25(Suppl B):11B-15B.
10. Iida H, Ohkubo H, Inamori M, Nakajima A, Sato H. Epidemiology and clinical experience of chronic intestinal pseudo-obstruction in Japan: a nationwide epidemiological survey. *J Epidemiol*. 2013; 23(4):288-294.
11. Dorudi A, Berry AR, Kettlewell MGW. Acute colonic pseudo-obstruction. *Br J Surg*. 1992; 79:99-103.
12. Maloney N, Vargas HD. Acute intestinal pseudo-obstruction (Ogilvie's syndrome). *Clinics in Colon and Rectal Surgery*. 2005; 18(2):96-101.
13. De Giorgio R, Knowles CH. Acute colonic pseudo-obstruction. *Br J Surg*. 2009; 96:229-239.
14. Vanek VW, Al-Sult M. Acute pseudo-obstruction of the colon (Ogilvie's syndrome): an analysis of 400 cases. *Dis Colon Rectum*. 1986; 29:203-210.
15. Stephens FO. The syndrome of intestinal pseudo-obstruction. *Brit Med J*. 1962; 1(5287):1248-1250.
16. Legge DA, Wollaeger EE, Carlson HC. Intestinal pseudo-obstruction in systemic amyloidosis. *Gut*. 1970; 11:764-767.
17. Koppelman RN, Stollman NH, Baigorri F, Rogers AI. Acute small bowel pseudo-obstruction due to AL amyloidosis: a case report and literature review. *Am J Gastroenterol*. 2000; 95(1):294-296.
18. Tada S, Iida M, Yao T, Kitamoto T, Yao T, Fijishima M. Intestinal pseudo-obstruction in patients with amyloidosis: clinicopathologic differences between chemical types of amyloid protein. *Gut*. 1993; 34(10):1412-1417.
19. Chila AG. Fascial-Ligamentous Release: Indirect Approach. In *Foundations for Osteopathic Medicine (2<sup>nd</sup> edition)*. Philadelphia, PA: Lippincott Williams & Wilkins. 2003: 908-915.
20. Lossing K. Visceral Manipulation. In *Foundations for Osteopathic Medicine (2<sup>nd</sup> edition)*. Lippincott Williams & Wilkins: Philadelphia, PA. 2003: 1078-1093.
21. Nicholas AS, Nicholas EA. *Atlas of Osteopathic Techniques*. 3<sup>rd</sup> ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2016: 92, 135, 141, 484-489, 498, 501, 528-532.
22. Intestinal pseudo-obstruction. NIH National Institute of Diabetes and Digestive and Kidney Diseases website. <https://www.niddk.nih.gov/health-information/digestive-diseases/intestinal-pseudo-obstruction> Accessed March 19, 2017.
23. Mann SD, Debinski HS, Kamm MA. Clinical characteristics of chronic idiopathic intestinal pseudo-obstruction in adults. *Gut*. 1997; 41:675-681.
24. Lossing K. Visceral manipulation. In Ward RE, ed. *Foundations for Osteopathic Medicine*. 2nd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2003:1078-1093.
25. Kuchera ML, Kuchera WA. *Osteopathic Considerations in Systemic Dysfunction*. 2nd ed. Columbus, OH: Greyden Press; 1994:95-122. ■