

BRIEF REPORT

APPLICATION OF OSTEOPATHIC TREATMENT FOR NON-PAIN-RELATED DISCOMFORTS OF PREGNANCY: A LITERATURE REVIEW

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KEYWORDS

- Osteopathic treatment
- Pregnancy
- Edema
- Nausea
- Constipation
- Gastroesophageal reflux disease

ABSTRACT

Many osteopathic textbooks include treatment modalities and techniques that could improve frequently experienced ailments of pregnancy, such as nausea, vomiting, gastroesophageal reflux disease, constipation, and edema. However, there is little scientific evidence to support the use of osteopathy for these conditions, particularly among the pregnant population. The aim of this literature review is to identify and evaluate current evidence regarding the use of osteopathy in the management of common discomforts of pregnancy. Several search engines and journals were used to identify peer-reviewed articles written between 2003 and 2023. Eleven articles were included in total, including a variety of case reports, pilot studies, and journal articles. The results show that although osteopathy does appear to be safe to perform during the third trimester and its efficacy in the treatment of these conditions is promising, current evidence is insufficient to guide treatment protocols. Further research is needed to establish efficacy and determine osteopathic treatment regimens.

INTRODUCTION

Most of the research conducted to evaluate osteopathic medicine has focused on pain management. However, there are several non-pain-related ailments that many osteopathic textbooks claim could be improved with the use of osteopathy. Pregnant women frequently experience many of these ailments, including nausea, vomiting, gastroesophageal reflux disease (GERD), constipation, and edema,¹ and could theoretically benefit from osteopathic manipulation. The objective of this paper is to review current literature regarding the use of osteopathic manipulative medicine to alleviate common discomforts of pregnancy and provide clinical recommendations for the osteopathic physician.

METHODS

A thorough literature review was conducted using the following search engines and journals: Google Scholar, PubMed, *Journal of the Osteopathic Family Physician*, and *Journal of Osteopathic Medicine*. A standard protocol was used to search each database, which included entering the keywords seen in Figure 1 into the search bar. Only peer-reviewed articles written between 2003 and 2023 were included. A total of 11 articles and case reports were included in this study, which included case reports, pilot studies, and journal articles.

FIGURE 1:

Keywords entered into search engines

Pregnancy	<ul style="list-style-type: none"> • Osteopathy • Pregnancy • vomiting 	<ul style="list-style-type: none"> • Osteopathy • Pregnancy • GERD 	<ul style="list-style-type: none"> • Osteopathy • Pregnancy • Edema 	Osteopathic treatment of hyperemesis gravidarum	Osteopathic treatment of gastroesophageal reflux disease
<ul style="list-style-type: none"> • Osteopathy • Pregnancy 	<ul style="list-style-type: none"> • Osteopathy • Pregnancy, • hyperemesis 	<ul style="list-style-type: none"> • Osteopathy • Pregnancy • Gastroesophageal reflux disease 	Osteopathic treatment of nausea	Osteopathic treatment of dyspepsia	Osteopathic treatment of constipation
<ul style="list-style-type: none"> • Osteopathy • Pregnancy • Nausea 	<ul style="list-style-type: none"> • Osteopathy • Pregnancy • Dyspepsia 	<ul style="list-style-type: none"> • Osteopathy • Pregnancy • Constipation 	Osteopathic treatment of vomiting	Osteopathic treatment of GERD	Osteopathic treatment of edema

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RESULTS

Edema

There were two articles identified concerning the use of osteopathic manipulation in the treatment of lower-extremity edema among pregnant women. The first study was a randomized controlled trial (RCT) that sought to evaluate hemodynamic effects of osteopathic treatment in relation to orthostatic position changes (head-up tilt testing) and intermittent calf-muscle tension (heel raising) among women in their third trimester. The researchers found no statistical difference in heart rate or blood pressure at rest or with head-up tilt testing pre- and posttreatment, but observed an acute increase in blood pressure and decrease in heart rate following heel raising among the patients who had received osteopathic manipulative treatment. Specific treatment modalities utilized during this study included soft tissue, articular, myofascial release, and muscle energy directed at the head, neck, abdominal diaphragm, pelvic diaphragm, back, pelvis, and sacrum. The researchers concluded that osteopathy may improve venous return by supporting the skeletal muscle pump and could therefore impact the incidence and/or severity of lower-extremity edema and other discomforts of pregnancy related to venous congestion.²

The second, known as the PROMOTE study, was an RCT that included 380 subjects with the primary objectives of evaluating osteopathic management of low back pain, improving functional status during the third trimester, and incidence of certain complications of pregnancy, labor, and delivery. As part of their osteopathic regimen, they included techniques theorized to improve both lower-extremity edema and constipation, although they did not measure changes associated with these conditions, as they were not the primary objective of this study. However, the researchers concluded that the osteopathic techniques performed in this study are safe during pregnancy and effectively decrease the rate of loss of functional status over the course of pregnancy.^{3,4}

Nausea and Vomiting

Although many osteopathic physicians have reported a decrease in nausea and vomiting among pregnant patients treated with osteopathy,⁵ only one case report was found using the search criteria outlined above. In this case, a 27-year-old G1P0 at approximately 14 weeks' gestation was evaluated at an osteopathic clinic for severe nausea and vomiting. Although the patient did not meet the Fairweather criteria for hyperemesis gravidarum, she did show several signs and symptoms consistent with the diagnosis, including severe nausea and vomiting and 5-lb weight loss. The patient was found to have several somatic dysfunctions and was treated accordingly. Following treatment, the patient reported a decrease in nausea and vomiting of 50% and 41%, respectively, using the Pregnancy-Unique Quantification of Emesis and Nausea (PUQE) index and the Hyperemesis Impact of Symptoms Score (HISS).⁶

Constipation

There were no articles identified concerning the use of osteopathic manipulation in the treatment of constipation for pregnant women, however, there were two articles identified that evaluate the use of osteopathy to treat constipation.

The first article was a pilot study that evaluated the use of osteopathic manipulative treatment for constipation in six participants. This study found a clinically and statistically significant improvement in severity of constipation, quality of life, and colonic transport time.⁷

The second article was also a pilot study that evaluated the use of osteopathic manipulative treatment for constipation in 21 constipated female participants. This study found that the Knowless Eccersley Scott Symptom score, oro-anal transit time, left colonic transit time, and right colonic transit time had decreased, and stool frequency and Bristol stool scale had increased. There was no significant change in patient assessment of constipation, although the patients did report a decrease in abdominal pain and bloating, with an increase in quality of life.⁸

Gerd

There were no articles identified concerning the use of osteopathic manipulation in the treatment of GERD for pregnant women, however, there were six articles identified that evaluate the use of osteopathy to treat dyspepsia and GERD.

The first article is a case report that details a 37-year-old female with previously diagnosed GERD on endoscopic exam, with symptoms refractory to multiple medications. The patient was treated with OMT aimed at treating somatic dysfunctions that were identified during an osteopathic exam. The patient was also prescribed metoclopramide 2.5 mg with meals, which she discontinued after several days due to subjective lack of benefit. At a 6-month follow-up, the patient reported 90% improvement in her symptoms, which was attributed fully to the osteopathic treatment. The patient had not seen any other providers, taken any additional medications, or made any dietary changes within the 6-month follow-up period.⁹

The second article was an interventional study that assessed the impact of osteopathy on GERD in a total of 22 patients. Utilizing traction of the cardia, abdominal diaphragm mobilization, thoracic spine mobilization, and posture correction, it was found that the prevalence and severity of symptoms were significantly reduced 3 months after treatment, with only two patients reporting no improvement. Furthermore, this study found no statistically significant difference between patients who received osteopathic treatment only and those who received osteopathic treatment in addition to previously prescribed medications, which included H2-receptor antagonists and proton pump inhibitors.¹⁰

The third article was an RCT that sought to compare lower esophageal sphincter (LES) pressure values before and immediately after osteopathic manipulation among 38 participants. The researchers utilized a multistep diaphragm stretching technique coordinated with respiration as previously

described in the literature, with slight modifications described within their report. They found a 9%-27% increase in LES pressure shortly after osteopathic treatment, which was both clinically and statistically significant.¹¹

The fourth article was an RCT that assessed the efficacy of osteopathy aimed at the LES for the treatment of GERD among 60 participants. The researchers performed a respiratory-based osteopathic technique previously described in the literature for the management of GERD. One week after patients received osteopathic manipulation, researchers found a 1.49-point difference in GerdQ scores between the treatment and control group, supporting the use of osteopathy for GERD.¹²

The fifth article was an RCT that assessed the use of osteopathy in the management of GERD among 70 patients. After performing individualized osteopathic treatment based on somatic dysfunction identified on exam, the researchers found a statistically significant change in the Quality of Life in Reflux and Dyspepsia questionnaire between the two groups, in support of the use of osteopathy. These results were sustained 20 weeks after the intervention.¹³

The sixth article was an interventional study performed with the intent of developing and evaluating a protocol for the osteopathic management of GERD. Using osteopathy aimed at the abdominal diaphragm and esophagus, they found an improvement from 13 out of 45 to 4 out of 45 using the QS-GERD Questionnaire in a patient with a 4-year history of GERD.¹⁴

COMMENTS

The PROMOTE study utilized many gentle osteopathic techniques, including soft tissue, myofascial release, and muscle energy, while avoiding more aggressive techniques such as high-velocity low-amplitude. While doing so, they demonstrated the safety of osteopathic manipulation during the third trimester of pregnancy.³ With this in mind, the following conclusions can be made concerning the use of osteopathy for each of the major non-pain-related discomforts of pregnancy discussed.

There is little current evidence for the use of osteopathy to treat edema in pregnancy. However, it has been demonstrated to improve venous return in conjunction with skeletal muscle pumping during pregnancy,² and has been shown to improve lymphatic flow in canines.¹⁵ Given the safety profile of these techniques, it is therefore reasonable to perform osteopathic techniques to reduce lower-extremity edema during pregnancy, although further research is needed to provide treatment recommendations.

There is a single case report concerning the use of osteopathy for the treatment of nausea and vomiting among pregnant women, with no additional evidence in the literature to demonstrate a positive effect among nonpregnant patients. Osteopathy may be considered so long as the patient can tolerate treatment, but further research is needed to establish any meaningful recommendation for osteopathy to treat nausea and vomiting among pregnant patients.

The two articles concerning the use of osteopathy for the treatment of constipation conclude that osteopathy may be a legitimate treatment option. However, these articles do not evaluate pregnant patients, which may significantly alter the method of osteopathy utilized. Furthermore, the PROMOTE study utilized osteopathy that could improve constipation but did not report on outcomes related to constipation or edema, as these were not primary end measures of this study. Again, these treatments have been demonstrated to be safe, but their efficacy in pregnant patients has not yet been demonstrated. Further research is needed to evaluate the use of osteopathy to treat constipation among pregnant patients.

Of all the non-pain discomforts of pregnancy evaluated; osteopathic treatment of GERD has the most support. With six articles, including four RCTs and two interventional studies supporting the use of osteopathy for GERD, it is safe to recommend the use of osteopathy for GERD among the general population. However, there were no studies directly assessing the osteopathic treatment of GERD in the pregnant population. Although osteopathy is safe in the third trimester of pregnancy³ and has been shown to be effective in the treatment of GERD, no recommendations can be made at this time. Further research is needed to evaluate the use of osteopathy to treat GERD among pregnant patients.

Many of the studies included in this review utilize similar osteopathic techniques, yet they do not follow a standardized treatment plan. Heineman proposes a treatment protocol for patients to improve gastrointestinal function, however it is nonspecific to pregnant patients. This protocol primarily utilizes gentle soft-tissue techniques, many of which have been shown to be safe during the third trimester of pregnancy by the PROMOTE³ study. Within the report, Heineman includes five case reports of successful treatment with osteopathic manipulation, including cases of GERD, constipation, and nausea and vomiting.¹⁶ This treatment plan should be utilized by future research to assess efficacy of these gentle techniques, particularly within pregnant women.

CONCLUSION

There are many non-pain-related discomforts of pregnancy that could be amenable to osteopathic treatment. While there is sufficient evidence to conclude that osteopathy is safe to perform during the third trimester of pregnancy,³ evidence is lacking in support of its efficacy in these conditions. There is preliminary evidence to believe that osteopathy could be efficacious for nausea and vomiting, constipation, GERD, and edema in pregnancy, but a significant amount of research is needed before strong recommendations can be made. Additional research should utilize the treatment protocol proposed by Heineman¹⁶ in order to unify and strengthen future research efforts.

REFERENCES

1. Davis DC. The discomforts of pregnancy. *J Obstet Gynecol Neonatal Nurs*. 1996;25(1):73–81. doi: 10.1111/j.1552-6909.1996.tb02516.x
2. Hensel KL, Pacchia CF, Smith ML. Acute improvement in hemodynamic control after osteopathic manipulative treatment in the third trimester of pregnancy. *Complement Ther Med*. 2013;21(6):618–626. doi: 10.1016/j.ctim.2013.08.008
3. Hensel KL, Roane BM, Chaphekar AV, Smith-Barbaro P. PROMOTE study: safety of osteopathic manipulative treatment during the third trimester by labor and delivery outcomes. *J Am Osteopath Assoc*. 2016;116(11):698–703. doi: 10.7556/jaoa.2016.140
4. Hensel KL, Carnes MS, Stoll ST. Pregnancy research on osteopathic manipulation optimizing treatment effects: the PROMOTE study protocol. *J Am Osteopath Assoc*. 2016;116(11):716–724. doi: 10.7556/jaoa.2016.142
5. Hensel KL. Osteopathic Manipulative Medicine in Pregnancy: Acute Physiological and Biomechanical Effects [dissertation]. Fort Worth, TX: University of North Texas Health Science Center at Fort Worth; 2009.
6. Markelz KA, Blumer JU. Osteopathic manipulative treatment for patient with severe nausea and vomiting in pregnancy: a case study. *The AAO Journal*. 2015; (1)13-18.
7. Brugman R, Fitzgerald K, Fryer G. The effect of osteopathic treatment on chronic constipation - a pilot study. *International Journal of Osteopathic Medicine*. 2010;13(1):17–23. doi: 10.1016/j.ijosm.2009.10.002
8. Belvaux A, Bouchoucha M, Benamouzig R. Osteopathic management of chronic constipation in women patients. Results of a pilot study. *Clin Res Hepatol Gastroenterol*. 2017;41(5):602–611. doi: 10.1016/j.clinre.2016.12.003
9. Mirocha NJ, Parker JD. Successful treatment of refractory functional dyspepsia with osteopathic manipulative treatment. *Osteopathic Family Physician*. 2012;4(6):193–196. doi: 10.1016/j.osfp.2012.01.003
10. Bjornaes KE, Reiertsen O, Larsen S. Does osteopathic manipulative treatment (OMT) have an effect in the treatment of patients suffering from gastro esophageal reflux Disease (GERD)? *Int J Clin Pharmacol Pharmacother*. 2016;1:116. doi: 10.15344/2016/ijccp/116
11. Da Silva RCV, De Sá CC, Pascual-Vaca ÁO, et al. Increase of lower esophageal sphincter pressure after osteopathic intervention on the diaphragm in patients with gastroesophageal reflux. *Diseases of the Esophagus*. 2013;26(5):451–456. doi:10.1111/j.1442-2050.2012.01372.x
12. Eguaras N, Rodríguez-López ES, Lopez-Dicastillo O, Franco-Sierra MÁ, Ricard F, Oliva-Pascual-Vaca Á. Effects of osteopathic visceral treatment in patients with gastroesophageal reflux: a randomized controlled trial. *J Clin Med*. 2019;8(10):1738. doi: 10.3390/jcm8101738
13. Lynen A, Schömitz M, Vahle M, Jäkel A, Rütz M, Schwerla F. Osteopathic treatment in addition to standard care in patients with gastroesophageal reflux disease (GERD) – a pragmatic randomized controlled trial. *J Bodyw Mov Ther*. 2022;29:223–231. doi: 10.1016/j.jbmt.2021.09.017
14. Rios Diniz L, Nesi J, Christina Curi A, Martins W. Qualitative evaluation of osteopathic manipulative therapy in a patient with gastroesophageal reflux disease: a brief report. *J Amer Osteopath Assoc*. 2014;114(3):180–188. doi: 10.7556/jaoa.2014.036
15. Castillo R, Schander A, Hodge LM. Lymphatic pump treatment mobilizes bioactive lymph that suppresses macrophage activity in vitro. *J Amer Osteopath Assoc*. 2018;118(7):455–461. doi: 10.7556/jaoa.2018.099
16. Heineman K. An osteopathic manipulative treatment (OMT) evaluation and treatment protocol to improve gastrointestinal function. *The AAO Journal*. 2022;32(2):34–44.