

Review Article

The Relationship of Constipation and Abdominal Massage: Current Literature Data

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Abstract

Chronic constipation, with a worldwide prevalence of 10-15%, is one of the most common gastrointestinal diagnoses in clinical practice and the most common reason for referrals to gastroenterologists and surgeons in Turkey. Although constipation is more common in women and the elderly, it can affect anyone regardless of race, age, or gender. It can cause significant health burden by negatively affecting the quality of life. Primary treatment is lifestyle changes, especially fiber dietary supplementation and exercise. Laxatives are used as the gold standard pharmacological treatment of chronic constipation. One of the effective nursing interventions used to treat chronic constipation is abdominal massage. The aim of this review is to briefly summarize the literature on the definition, classification, epidemiology, clinical symptoms and management of constipation. The relationship between constipation and abdominal massage was discussed in depth.

Keywords: Abdominal massage; bowel disorder; chronic constipational.

Introduction

It is important to know the prevalence of constipation, to be aware that it is a preventable and treatable symptom, and to set standards in its management (Pehlivan et al., 2022). Abdominal massage, which is used in the prevention and treatment of constipation, has an important place in nursing care and is an independent nursing intervention. In the creation of this review, a literature review was conducted using the words "constipation" (MeSH), "gastrointestinal constipation", "chronic constipation", "bowel disorder", "massage" (MeSH), "abdominal massage", "manual therapy". Studies on the effectiveness of abdominal massage in the management of chronic constipation were searched using the EBSCO, CINAHL, Cochrane Library, DOAJ, PubMed, ProQuest, ScienceDirect, SpringerLink, Taylor & Francis, Wiley, CoHE Thesis, Google Scholar, Scopus, and Web of Science databases. Between 03 January and 22 February 2023, electronically accessible

articles, books and theses were examined. In this direction, 143 studies published in Turkey and abroad were reviewed, the majority of which were meta-analysis and systematic review studies. In line with the information obtained after the screening for the relationship between constipation and abdominal massage, the subject was examined under the headings of "chronic constipation", "abdominal massage", and "the relationship between chronic constipation and abdominal massage". The aim of this review is to briefly summarize the literature on the definition, classification, epidemiology, clinical symptoms and management of constipation. The relationship between constipation and abdominal massage was discussed in depth.

Chronic constipation is the most common functional gastrointestinal disorder of the digestive system (Odabas and Taspınar, 2020), which presents with subjectively evaluated signs and symptoms, can develop in any age group, and affects approximately 10-

15% of the population (Aziz et al., 2020). Patients mostly describe constipation as infrequent bowel movements, hard and lumpy stools (Aziz et al., 2020), fewer defecations than normal, excessive straining (Aziz et al., 2020), spending too much effort on straining, obstruction, feeling of incomplete emptying of the abdomen (Aziz et al., 2020; Bharucha and Dantelli, 2020), few and infrequent stool, use of hand maneuvers for defecation. (Odabas and Taspınar, 2020; Yan et al., 2023).

Rome IV criteria are considered for a common definition and diagnosis of chronic constipation (Dengiz et al., 2022). According to the Rome IV criteria, the onset of symptoms in chronic constipation must occur at least 6 months prior to diagnosis and symptoms must be present within the last 3 months (Lacy and Patel, 2017). Of the 6 symptoms mentioned (straining (1), hard or fragmented stool (2), feeling of incomplete emptying after defecation (3), feeling anorectal obstruction (4), needing auxiliary manual maneuvers (5), less than 3 times a week number of defecations (6)) should accompany at least 2 of them and these symptoms should be present in more than 25% of defecation actions (Ersoy, 2020).

Chronic constipation is categorized as:

- (a) functional constipation,
- (b) irritable bowel syndrome with constipation,
- (c) opioid-induced constipation, and
- (d) functional defecation disorders including dyssynergic defecation (Aziz et al., 2020).

Functional constipation is the most common type of chronic constipation worldwide, which negatively affects physical and mental health as well as quality of life (Barberio et al., 2021; Tang et al., 2020). In functional constipation, there is difficulty in defecation, low number of defecations, fatigue and sensory insufficiency, while there is no organic abnormality in the abdominal regions of the patients. Although the curative effect of lifestyle change in functional constipation is discussed, laxatives are effective in treatment (Tang et al., 2020). Irritable bowel syndrome associated with constipation is a chronic and recurrent intestinal disease characterized by

abdominal pain, dyspepsia and constipation without any organic cause. The cardinal symptom of the disease is abdominal pain.

There is no definitive treatment for the disease, which is important in terms of reducing the patient's quality of life (Cicek, 2020). Opioid-induced constipation is an important cause of morbidity in older adults, and its prevalence increases with long-term use of opioid analgesics (Camilleri et al., 2014; Jamie et al., 2023). The most common side effect of opioid use is intestinal dysfunction, which can lead to constipation (Turan and Asti, 2016). Effective and precise protocols for opioid-induced constipation cannot be shown in the literature (Farmer et al., 2019; Hanaive et al., 2016; Turan and Asti, 2016).

Functional defecation disorders are characterized by pathophysiological mechanisms such as paradoxical contraction or insufficient relaxation (dyssynergic defecation) of the anal sphincter during defecation, insufficiency of rectoanal coordination or insufficient propulsion force (insufficient defecational propulsion). The main problem in this behavioral disorder is the inability to coordinate the abdominal and pelvic floor muscles to evacuate stool. In the treatment of functional defecation disorders, a behavioral treatment method (biofeedback) involving bowel re-education is used. Biofeedback therapy is a specific and effective treatment method includes teaching correct pushing movements and strengthening exercises for the pelvic muscles.

The prevalence of chronic constipation in the world ranged from 3% to 38%. The prevalence of chronic constipation is approximately 10-12% in America and 14% in Asia (Yan et al., 2023). In studies conducted in different patient groups in Turkey, the prevalence of constipation was reported to range between 22-44%. Different methods used to determine the prevalence of chronic constipation affect the results of epidemiological studies (Ersoy, 2020). Barberio et al. (2021), a systematic review and meta-analysis study involving 45 studies and 275,260 participants was conducted. In this study, pooled prevalence was 15.3% in studies defining constipation prevalence according to the Rome I criteria, 11.2% using

Rome II, 11.4% with Rome III, and 10.1% when Rome IV criteria were used.

The prevalence was reported to varies between countries, even when uniform symptom-based criteria were used to define the presence of constipation in the same study. For this reason, it is emphasized that genetic factors, ethnicity, environmental and cultural factors, diet and reporting existing symptoms may be effective in determining the prevalence (Barberio et al., 2021).

Colonic sensorimotor disorders and pelvic floor dysfunction are the most common causes of chronic constipation (Bharucha and Dantelli, 2020), which negatively affects the quality of life (Genc and Hisar, 2021) and causes a significant health burden (Aziz et al., 2020; Barbara et al., 2023). Low fiber intake, insufficient fluid intake, sedentary life, microbiome disorders, electrolyte disorders (Aydinli and Karadag, 2023), anatomical problems or drugs used may contribute to chronic constipation (Bharucha and Lanceli, 2020).

In addition, chronic constipation was reported to be associated with advanced age (Barbara et al., 2023; Camilleri, et al., 2017; Dzierzanowski and Cialkowska-Rysz, 2018; Serrano et al., 2017), female gender (Barbara et al., 2023; Barberio et al., 2021; Camilleri et al., 2017; Serrano et al., 2017; Wang, 2023), black race, low income (Camilleri et al., 2017) and education level, obesity, polypharmacy, psychological problems, stress, and sleep disorders.

The effects of constipation on the patient can vary. Physical symptoms such as distention, abdominal and rectal pain, difficulty in defecation, decrease in the number of defecations, gas, hard and solid stools, feeling of incomplete emptying of stool, back pain can be seen. It may cause secondary symptoms such as fecal incontinence, anal fissure, nausea-vomiting, intestinal obstructions/perforations, rectal pressure, and hemorrhoids in delayed diagnosis or untreated. In addition, excessive straining can adversely affect cerebral and coronary circulation, causing syncope (Wong et al., 2020), cardiac ischemia and even death.

Constipation, which negatively affects the physical and psychological health of the

individual, is a treatable health problem (Aydinli and Karadag, 2023; Lafci and Kasikci, 2023). Pharmacological, non-pharmacological and surgical treatment methods can be used in the treatment of constipation. In treatment, dietary fiber supplementation, increased fluid intake and physical activity, and appropriate stimulant/osmotic laxatives should be used. Prokinetic agents can then be given (Barbara et al., 2023; Bharucha and Dantelli, 2020). Pharmacological and surgical treatment costs are quite high (Lafci and Kasikci, 2023). Considering the side effects of pharmaceutical treatment and the cost it brings to the health system, the tendency of healthcare professionals and researchers to turn to non-drug complementary and integrated treatment methods has increased (Seyyedraassoli et al., 2018; Wang et al., 2020). Complementary treatments are generally economic, low-risk, and non-invasive. It can also be used by nurses in the field and clinics, as it does not require the use of expensive equipment (Turan and Atabek Asti, 2016). The main non-pharmacological methods commonly used in the treatment of constipation are meditation, probiotic use, biofeedback, acupuncture, acupressure (Hasanshahi et al., 2022), reflexology, aromatherapy (Aydinli and Karadag, 2023) and abdominal massage (Aydinli and Karadag, 2023; Hasanshahi et al., 2022; Lafci and Kasikci, 2023; Olgun and Eser, 2020; Yue, 2020)

Massage is a safe, effective, non-invasive and non-pharmacological method (Yue et al., 2020). Massage is a scientific manipulation of body tissues with physiological, neurological, psychological and biomechanical effects (Miladinia et al., 2017). Massage is defined as the regular and rhythmic movements of an individual's hand on body tissues, including nerves and muscles (Dehghan et al., 2020). Massage therapy can increase blood circulation and lymphatic fluid, reduce pressure on muscles, help eliminate waste, and release endorphins to relax the person. Massage affects the motor, nervous and cardiovascular systems and provides relaxation and rest for the whole body (Kanakalakshmi, 2022).

Abdominal massage, which is among the different types of massage, stimulates the gastrointestinal response by increasing parasympathetic activity. Thanks to the mechanical and reflex effects of abdominal massage, peristaltic stimulation is provided, the mobility of the abdominal muscles is increased (Lafci and Kasikci, 2023), and the secretion of digestive enzymes is stimulated (Kayikci et al., 2020). In this way, the transit time of nutrients through the gastrointestinal tract is shortened, the sphincters are relaxed, and the severity of pain and constipation is reduced (Cetinkaya et al., 2020; Dehghan et al., 2020).

Abdominal massage has been used to reduce muscle tension (Wang et al., 2021), increase circulation (Viravud et al., 2017), stimulate gastric acid secretion, increase appetite and bowel movements, reduce gastric residual volume, vomiting, abdominal bloating (Cetinkaya et al., 2020), fecal incontinence, and intra-abdominal pressure. Studies have shown that massage has some positive effects on heart rate and blood pressure (Muller et al., 2016), reduces stress and fatigue, and improves skin temperature (Cevik et al., 2018). In the study conducted by Fekri et al., (2021), it was concluded that abdominal massage applied together with lifestyle education relieves constipation and bloating and increases food intake tolerance in elderly patients with stroke.

Abdominal massage can be performed with the patient in the supine or side-lying position. Lying on the left side of the patient is one of the most effective positions. During abdominal massage the knees usually are bent about 90 degrees to the trunk to tilt the pelvis and allow for more relaxed abdominal tissue (Fritz and Fritz, 2020). If this position is not possible, a thin pillow can be placed under the knees to loosen the abdomen and provide slight flexion in the lower extremities while the patient is in the supine position. Abdominal massage is performed by applying effeurage (scrubbing), petrissage (kneading) and vibration (vibration) maneuvers from the abdominal wall to the intestines (Turan and Atabek Asti, 2015). Vibration is one of the effective methods used to reduce intestinal spasm. All massage maneuvers are directed clockwise to promote peristalsis and

mechanical emptying of the colon. Maneuvers begin in the left lower quadrant of the sigmoid colon to avoid compression of the stool material. Maneuvers are gradually applied towards the large intestine and spread to the entire colon (Fritz and Fritz, 2020).

With the patient in the supine position, the nurse stands on the patient's left side. This position allows the nurse to use body mechanics easily (Figure 1). The form of massage to empty the colon should be as follows:

A. All massage maneuvers applied to the colon should be clockwise. The maneuvers begin in the lower left quadrant at the sigmoid colon. The maneuvers progressively contact all of the large intestine and eventually cover the entire colon area. The descending colon is massaged downwards.

B. Massage across the transverse colon to the left side using short strokes directed toward the sigmoid colon.

C. Massage up the ascending colon on the right side of the body using short strokes directed toward the sigmoid colon. End at the right-side ileocecal valve, which is located in the lower right quadrant of the abdomen.

D. Massage the entire flow pattern of the abdominal sequence, using long, light to moderate strokes, from the ileocecal valve to the sigmoid colon. Then repeat the sequence (Figure 1).

Abdominal massage has an important place in nursing care. Abdominal massage is an independent nursing intervention. It has been emphasized that the care of the patient with constipation and massage can be applied with the nursing decision within the scope of "The Regulation on the Amendment of the Nursing Regulation" published by the Ministry of Health of the Republic of Turkey in 2011 with the number 27910. In different studies, it is recommended that abdominal massage be performed by nurses (Altun Ugras et al., 2022; Cetinkaya et al., 2020). Abdominal massage can be easily applied by the patient (Tang et al., 2020), patient's relatives or nurses. Since it can be done by the patient and the patient's relatives, the cost to the health system can be greatly reduced.

Abdominal massage is an alternative and complementary method widely used in the clinic to control constipation (Faghihi et al., 2021; Hasmi et al., 2020; Tang et al., 2020). Studies have shown that abdominal massage improves gastrointestinal functions and reduces the severity and complaints of constipation in elderly individuals with constipation (Aydinli and Karadag, 2023; Hasmi et al., 2020), intensive care patients

with endotracheal tube inserted (Cetinkaya et al., 2020; Dehghan et al., 2018), patients with total knee arthroplasty (Durmus Iskender and Caliskan, 2022), elderly patients hospitalized for fractures (Nouhi et al., 2022), patients with multiple sclerosis (Hasmi et al., 2020), patients with stroke (Wang et al., 2020), Parkinson's patients (McClurg et al., 2016), cancer patients (Hanai et al., 2016), and newborns (Hisar et al., 2019).

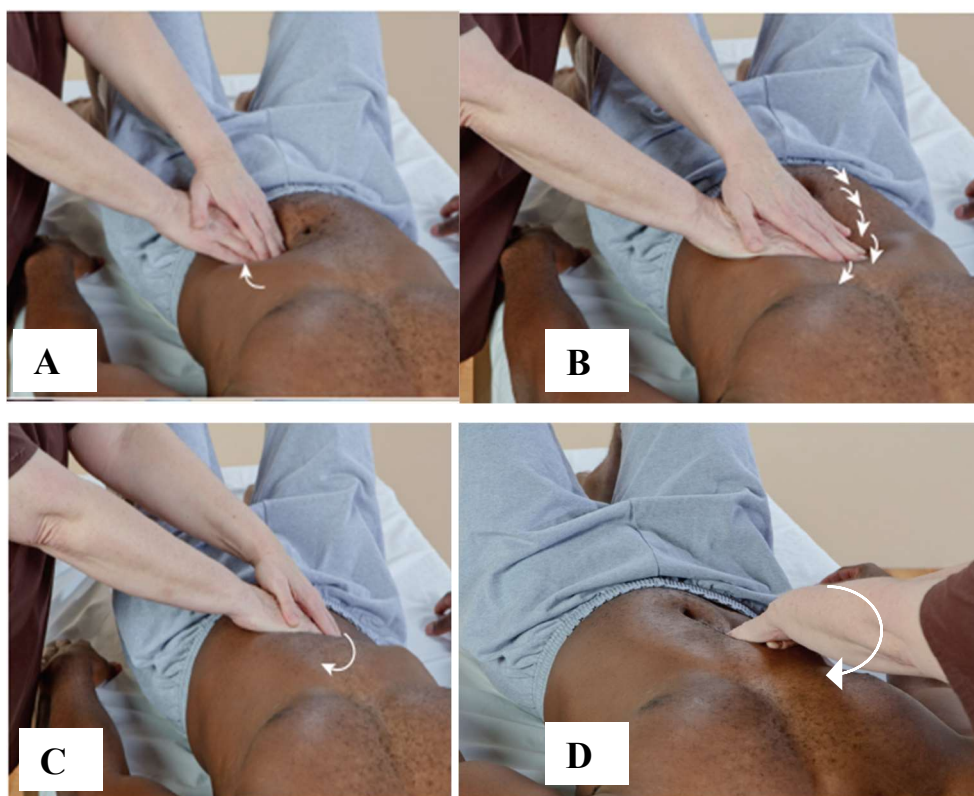


Figure 1. Abdominal massage form
Fritz and Fritz, 2020

Hasmi et al. (2020) reported that abdominal massage is effective in improving the quality of life as well as reducing the constipation problems and symptoms experienced in elderly patients, patients undergoing orthopedic surgery, and multiple sclerosis patients. Similar results were obtained in the systematic review of randomized controlled

studies by Kayikci et al., (2020). In another study, it was reported that people who received abdominal massage had a 70% decrease in constipation severity, 56% improvement in quality of life, and a 70% increase in defecation frequency (Dogan et al., 2022). In addition, in a study examining doctorate and master's theses made in Turkey, it was reported that massage has an effect on constipation (Ozdil et al., 2020). Studies

confirm that abdominal massage can improve chronic constipation (Zheng et al., 2019). Additionally, some studies have shown that massage not only improves constipation, but also prevents it (Wang et al., 2020). Based on all these, it was emphasized that abdominal massage should be one of the first-line conservative approaches in the treatment and prevention of chronic constipation (Dogan et al., 2022). The duration of application of abdominal massage is also important in the treatment of constipation. In many studies conducted with different patient groups, it has been reported that abdominal massage applied average between 1-8 weeks, 3-7 days a week, and 1-2 times a day can be an effective approach in managing constipation (Bezgin et al., 2023; Hanai et al., 2016; McClurg et al., 2016). In one study, elderly people with stroke were given abdominal massage in the direction of the colon for 15 minutes, twice a day for 10 days. As a result of the study, it was reported that massage reduced abdominal distension and laxative intake (Fekri et al., 2021). Similarly, in Turkey Baykal et al. (2018), abdominal massage was applied to neurology patients for an average of 15 minutes a day for 3-6 weeks. It was determined that massage reduced the severity of constipation, distention, bowel emptying difficulty and pain, and increased intestinal motility and frequency of defecation (Baykal et al., 2018). Cevik et al. (2018), a clockwise circular massage method was used for 30 days and each massage lasted for 45-60 minutes. As a result of the study, it was reported that abdominal massage has a remarkable effect in the treatment of constipation. In a recent study, the elderly in the intervention group were given abdominal massage (15 minutes, 5 days a week for 4 weeks). It was determined that massage applied to elderly individuals with constipation softened the stool consistency, reduced the severity of constipation and symptoms related to constipation (Aydinli and Karadag, 2023). Therefore, abdominal massage may be a promising intervention in regulating and improving gastrointestinal function for individuals suffering from constipation.

Conclusion and Recommendations: Abdominal massage is one of the most critical nursing interventions to regulate and improve gastrointestinal functions in various diseases.

Therefore, it can be used as a nursing intervention to prevent and treat constipation. Nurses working in primary care should create different strategies to prevent constipation:

- Nurses should encourage patients to self-massage through health education and counseling.
- Nurses should improve the awareness of healthy / patient individuals and families about preventing constipation.
- A standardized program should be established for the control and treatment of constipation on different sample groups in Turkey.

For this purpose, it is recommended to conduct multicenter, large sample, long-term and high-quality randomized controlled studies on the relationship between constipation and abdominal massage.

Ethical Approval: Ethics committee approval is not required. The work was carried out in accordance with all the principles contained in the Declaration of Helsinki. Throughout the entire study research and publication, ethics were treated in accordance with the ethics.

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