Impact of Castor oil Abdominal Massage in management of Constipation: A Pilot study

1 Shravya C N, 2Nithesh M K, 3Eby C Santhosh, 4G. Harinarayan Sharma, 5Grashma Gracious

1 PG Scholar, 2 Assistant professor, 3,4,5 UG Scholar
Department of Naturopathy,
Alva’s College of Naturopathy and Yogic Sciences
Shobhavana Campus
Moodbidri, India

Abstract:
Background: Constipation is a condition that makes it difficult to empty the intestine and is typically accompanied by hardened feces. One of the most prevalent complaints experienced by people worldwide is constipation. Massage induces peristalsis, shortens colonic transit time, and boosts bowel movement frequency. The ricinoleic acid included in castor oil has a potent laxative action and facilitates the simple removal of feces from the body. Therefore, the study's goal is to investigate the effectiveness of abdominal castor oil massage in the treatment of constipation.

Method: A total of 10 subjects were recruited who fulfilled the inclusion & exclusion criteria. Pre-assessments were recorded and intervention was given for 10 days for 15 mins. The tool used for screening and data collection is PAC-SYM questionnaire.

Results: Analysis of data was done by SPSS software. By paired t-test, there was a significant reduction in the mean of post PAC-SYM scores (p-value <0.001) when compared to baseline after the intervention.

Conclusion: Present study proved that there was significant improvement in the symptoms of constipation after castor oil massage for 10 days. Hence, castor oil abdominal massage can be used as a therapeutic measure to relieve constipation.

Keywords - castor oil, abdominal massage, constipation.

I. Introduction:
Constipation is characterized by irregular bowel movements or trouble passing stools. Primary or secondary constipation can be categorized, and within primary constipation, there are two subtypes: slow transit constipation and outlet obstruction. Constipation is characterized by irregular bowel movements or trouble passing stools. It is linked to a number of symptoms, including bloating, stomach pain, firm stools, straining, and the feeling of an anorectal blockage.[1] It is a widespread gastrointestinal ailment that costs the community a lot of money, with a prevalence range of 1% to 80% worldwide. The condition also exhibits significant geographic diversity. It is significant that different definitions have resulted in different levels of prevalence.[2] denotes a subjective perception of: - An unsatisfactory frequency of bowel motions; - A feeling of incomplete evacuation. The stool is uncomfortable to pass and/or has an abnormally firm consistency. Constipation is indicated when there are less than three bowel movements per week, less than 35 g of stool per day, less than 70% of the stool being water, and a longer than five-day gastrointestinal transit time.[3] Constipation can also cause straining during bowel movements, slower colonic transit time, hard, lumpy stools, abdominal distention and pain, feelings of incomplete bowel movements, low mood, decreased enjoyment of life, and occasionally restrictions in leisure and work. [4] Constipation is estimated to affect 16% of adults globally on average (ranging from 0.7% to 79%); however, the frequency was found to be 33.5% among adults between the ages of 60 and 110. The patient's quality of life and the use of medical resources are related to this diverse condition. Constipation was prevalent in a range of 1.4% to 37% of people, while functional constipation was prevalent in 24.2% of people.[2] Constipation generally occurs due to decrease in fiber intake from foods like fruit, vegetables, and cereals, a change in eating habits, ignoring the urge to pass stools, inactivity or lack of exercise, a decrease in fluid intake, a high body temperature (fever), being underweight or overweight, anxiety or depression, psychiatric issues like sexual abuse, violence, or trauma, medication, and pregnancy. The additional conditions include colon cancer, diabetes, hypercalcemia, hypothyroidism, multiple sclerosis, Parkinson's disease, spinal cord injury, anal fissure, and irritable bowel syndrome (IBS).[5] Three major forms of constipation can be distinguished: slow transit (13%), defecatory diseases (25%) and normal transit through the colon (59%). Even though feces pass through the colon normally and at a typical frequency, while it is in normal-transit, individuals still feel constipated. Anal sphincter and pelvic floor dysfunction are present in defecatory disorders. Last but not least, slow-transit constipation affects young women and
is accompanied by delayed proximal colonic emptying and meal-stimulated colonic motility. [6]

<table>
<thead>
<tr>
<th>ROME IV Criteria</th>
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<tr>
<td>Functional constipation must meet the following ROME IV criteria (at least 2 out of 6):</td>
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<tr>
<td>• Fewer than three bowel movements per week;</td>
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<tr>
<td>• Straining more than 25% of the time;</td>
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<tr>
<td>• Lumpy or hard stools more than 25% of the time;</td>
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<tr>
<td>• Feeling of anorectal obstruction more than 25% of the time;</td>
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<tr>
<td>• Feeling of incomplete evacuation more than 25% of the time;</td>
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<tr>
<td>• Needing to perform manual defecation aids more than 25% of the time.</td>
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In addition to the preceding three requirements, the following three should be fulfilled to diagnose functional constipation: 1. The presence of loose stools without the use of laxatives should be unusual. 2. Inadequate IBS eligibility requirements. 3. Present for a minimum of three months during a six-month period. [7]

Hemorrhoids, anal fissures, faecal impaction, and rectal prolapsed are some constipation complications. The history, a colonoscopy, or a CT of the pneumocolon are used to diagnose constipation. Additionally, the diet's high fiber content should be increased, along with fluid intake, as part of the treatment. Laxatives should only be used in situations where the patient's quality of life is negatively impacted by their symptoms. It has been demonstrated that prucalopride, linaclotide, and lubiprostone are beneficial against constipation. [8] Laxatives are substances that give intestinal contents more volume, keep water in the bowel lumen due to osmotic effects, or accelerate intestinal secretion or motility, which makes defecating more frequent and simpler. Drugs that directly affect the enteric nerve system to increase gastrointestinal motility and alleviate constipation are currently being developed. Constipation can also be treated with surgery and biofeedback. After consuming harmful substances, the colon is prepared and the intestines are evacuated using laxatives and lavage solutions. [9] Laxatives, and in many cases a polypharmacy of laxatives, are the standard treatments for chronic constipation. Because toxicants have more time to be absorbed by the colon's lining, long-term use of laxatives may increase the risk of colorectal cancer. [10]

Abdominal massage is a different but equally efficient nonpharmacological way for treating constipation. The pain and discomfort that are frequently associated with constipation may be reduced by abdominal massage, which may also increase peristalsis and speed colonic transit time. Patients with delayed transit constipation, chronic constipation, and functional constipation can be successfully managed. The absence of negative effects, excellent efficacy, and low cost of massage are benefits. Patients receiving this therapy require fewer pharmaceuticals. [11]

Massage has played a significant role in the treatment of illness and the preservation of health, through the ages and across cultures. [12] Since there has been written history, massage treatment has been practiced. Before the invention of pharmaceuticals, medicine was primarily touch therapies.[13] Swedish massage is the methodical use of rhythmic pressure and stroking while moving soft tissue to achieve or maintain wellness. Numerous advantages have been shown by studies. Swedish massage has been proven to be therapeutic and has positive benefits on many groups. It is strongly advised for usage in disease prevention. [14] There are no known negative side effects of abdominal massage, and a therapy plan may re-educate regular bowel movements. By changing intra-abdominal pressure, the massage affects the gut's mechanical and reflex functions, promoting peristalsis. Utilizing the mass movement of the gut, which strengthens the contraction and increases the propulsive force, can help abdominal massage become even more effective. A massage may reduce gastrointestinal transit time, soften stools, and load the rectum. People with persistent constipation and/or faecal incontinence, changed abdominal muscle tone, abdominal pain from cramps or gas, and issues with defecation have all been found to benefit from abdominal massage. Never use abdominal massage alone; always use it as a component of a comprehensive bowel control plan. [15]

Castor bean seeds, which produce a thick, pale yellow, non-volatile, and non-drying castor oil, are grown for their seeds. Castor oil is used to make hydraulic and braking fluids, soaps, lubricants, waxes, and lubricants. Additionally, it is used to make biodiesel, gasoline, coatings, fertilizers, and other products with pharmaceutical and medical applications. [16] For thousands of years, people have used castor oil, a well-known stimulant laxative, to alleviate constipation. One tablespoon is all that is necessary to release clogged internal organs. Castor oil was widely used as a panacea, mostly to treat constipation. Ricinoleic acid, the main fatty acid in castor oil, attaches to receptors on the walls of your intestines, prompting your bowel muscles to contract and expel feces. [17] For treating liver infections, stomachaches, flatulence, constipation, inflammation, warts, colic, enteritis, fever, headaches, and as a counterirritant, the castor oil plant is highly valued in traditional medicine. Hepatoprotective, anti-nociceptive, antioxidant, antiulcer, anticancer, anti-inflammatory, central analgesic, antidiabetic, antibacterial, antiviral, and wound healing activity are only a few of the beneficial therapeutic properties of its numerous phytochemicals. [18]
II. Materials and methods:

Study design: The study was 10 days, pre-post experimental design, a pilot study performed in Alvas Anandamaya Arogydhama Hospital, Mijar, Moodbidri, Karnataka. The protocol followed the institutional ethical committee approval (Registration Number- EC-076), and all the patients were provided with written informed consent in their local language.

Subjects: A sample size of 30 was selected according to convenient sampling method screened for constipation according to the Patient Assessment of Constipation-Symptoms (PAC-SYM) questionnaire and detailed history was collected. 10 subjects who were eligible were recruited for the study. Subjects were recruited, from Alva’s College of Naturopathy and Yogic Sciences, Moodbidri. Informed consent was obtained from the subjects by explaining the procedure, study objectives, and study methods. Patients with any of the following conditions were excluded from the study - Any underlying secondary pathologies, pregnancy, lactation, and other co-morbid conditions and who are not willing to participate in the study.

Inclusion criteria: The following criteria were the basis for selecting subjects:

- The consistency of the stool is too hard and/or – The stool is passed with discomfort. Indications for constipation are given when there are less than three bowel movements per week, less than 35 g of stool per day, stool water weight is less than 70% and gastrointestinal transit time is longer than five days
- Moderate to severe scoring, range of 24 – 48 using PAC-SYM questionnaire

Sample size: n=10

Intervention: Subjects were given abdominal massage for 15 minutes for consecutive 10 days. The subjects were made to lie in supine position with closed eyes and were asked to relax. Castor oil was applied on the abdomen of the subject and abdominal massage procedures were followed. No adverse events were recorded during the study.

Duration of the study: 10 days

Assessment: To assess the severity of constipation Patient Assessment of Constipation-Symptoms (PAC-SYM) questionnaire was used. An important tool for assessing the severity of patient-reported constipation symptoms is the Patient Assessment of Constipation-Symptoms (PAC-SYM) questionnaire, which was created through psychometric testing of people with chronic constipation. The 12-item questionnaire contains three symptom subscales: abdominal (four items), rectal (three items), and stool (five items). The scores for the items range from 0 to 4, with a score of 0 signifying "symptom absent," 1 "mild," 2 "moderate," 3 "severe," and 4 "very severe." [19]. A mean total score between 0 and 4 is generated by dividing the total score by the number of items correctly answered; the lower the total score, the lower the symptom burden. Prior to the intervention, baseline data were gathered, and 10 days later, post data were gathered.

Fig 1- Illustration of the study plan
III. Results:
Constipation significantly improved after receiving a 15-minute abdominal massage daily for 10 days, as determined by the PAC-SYM questionnaire. The analysis was carried out using SPSS software, and the degree of significance was determined using a paired t-test. The table below illustrates the significant improvement between the pre- and post-tests:

<table>
<thead>
<tr>
<th>PAC-SYM Assessment</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>p-value</th>
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<tr>
<td>Pre-test</td>
<td>28</td>
<td>1.155</td>
<td>0.001</td>
</tr>
<tr>
<td>Post-test</td>
<td>13.40</td>
<td>2.951</td>
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</tbody>
</table>

There is a significant difference after the castor oil abdominal massage.

IV. Discussion:
This study was conducted with the aim of understanding the effects of castor oil abdominal massage on constipated individuals. There were 10 female subjects selected from ACNYS, Mijar who were of constipated range in between 24-48 score of PAC-SYM with clinical manifestations. The study was carried out for 10 days in the evening and both pre and post assessment of constipation was measured. In this study, it is found that after the castor oil abdominal massage of 10 days for 15 minutes, there is a significant effect on relieving the constipation in participants. From this it can be concluded that castor oil abdominal massage has helped the participants in maintain health and improve bowel movements thus it has relieved constipation. There is a significant decrease in constipation observed after the intervention given for 10 days. The increase in peristaltic activity following the practice is what causes the decrease in constipation. This has already been proven in a study by J. Tack and Y. Yiannakou, where it was suggested to the constipated patients due to its major influence in reducing constipation. [20] The effectiveness of abdominal massage is enhanced by utilizing the mass movement of the gut with castor oil, increasing the strength of the contraction, and therefore its propulsive force is enhanced which helps in defecation.

Ricinus communis, a plant that grows widely in the Eastern parts of the world, is used to make castor oil, a type of vegetable oil. Although castor oil is most recognized for its laxative effects, several communities report using it for a variety of other purposes. Castor oil, for instance, has only been licensed by the FDA for use as a stimulative laxative, despite reports that it is good for uterine contraction, lipid metabolism, and antibacterial activity. The benefits, side effects, and contraindications of using castor oil for medical operations and constipation will be highlighted in this activity. [21] Additionally, 90% of castor oil contains ricinoleic acid (RA), which has been shown in the literature to lessen straining by binding to VR1 receptors. [22] The effectiveness of the treatment is due to the interaction of the castor oil and heat therapies. Heat therapies improve blood circulation, calm down muscle spasms, soften connective tissue, and have an impact on the autonomic nervous system. They are therefore regarded an alternative or complementary treatment. [23] [24] Castor oil packs had an advantage over laxatives and purgatives in that they did not cause incontinence or issues with not making it to the bathroom in time. [25] Enemas and suppositories, on the other hand, are invasive procedures that cause discomfort due to rectal pressure and difficulty in controlling evacuation, threaten privacy, make the patient dependent on others for their application, and may cause electrolyte imbalance and reduced the symptoms of constipation thereby improved patient’s quality of life. [26]
Abdominal massage has been proven to be helpful for persons with persistent constipation, faecal incontinence, changed abdominal muscle tone, cramping or flatulence-related abdominal pain, and issues with defecation. [27] According to research, emotional stress, worry, and cognitive decline can all cause constipation by overstimulating the sympathetic nervous system, which can hinder digestive motility. [28] A increasing body of evidence indicates that abdominal massage helps lessen the intensity of gastrointestinal symptoms, even for people who have persistent constipation. [29]

[30] The parasympathetic division of the autonomic nervous system is hypothesized to promote rectal loading by enhancing muscle motility and loosening sphincters in the gastrointestinal canal. Peristalsis and bowel feeling are encouraged by the subsequent rise in intra-abdominal pressure. [31] It has also been suggested that abdominal massage can help treat constipation by reducing the need for laxatives and the adverse effects that come with them [32]. Enhance health-related quality of life (QoL) [33], [34] and reduce the high cost of constipation-related medications to primary care. [35] According to reports, receiving an abdominal massage is a pleasant and soothing experience. [36] The majority of participants in the intervention group reported benefits on both a physical and emotional level, such as feeling more in control of their symptoms. They also reported improvements in their bowel function, a decrease in the amount of time they spent defecating, less strain and bloating, and an increase in the completeness of their evacuation.

The abdominal massage have been viewed by these particular individuals as an effective treatment for constipation as a result of the combination of pleasant visual and kinesthetic input, since the evidential change in results encouraged them to continue. [37] The effectiveness of abdominal massage in treating constipation was examined through post-test, a review of observational studies, case reports, and randomized controlled trials. According to a study by D. McClurg published in the Nursing Times magazine, abdominal massage helps reduce constipation caused by a variety of physiological factors. It enhances bowel movement frequency, accelerates peristalsis, shortens colonic transit time, and lessens discomfort and pain. [38] The study found that in addition to activating intestinal stretch receptors, massage may also cause defecation via inducing somato-autonomic reflexes. This method may reduce the length of the colonic transit period. [39] Direct pressure applied to the abdominal wall compresses and then releases different portions of the digestive system, temporarily altering the size of the lumen and triggering stretch receptors that can amplify the gastrocolic reaction and cause intestinal and rectal spasm. [40] According to case studies by Harrington, Shireffs, and Preece, abdominal massage is beneficial for constipation brought on by weak muscles or drugs that impede colonic motility. [41] The parasympathetic nervous system is stimulated by abdominal massage, which reduces abdominal muscle tension, increases the motility of the muscles in the digestive tract, increases digestive secretions, and relaxes the sphincters in the digestive tract. Another study discovered that belly massage could dramatically boost gastrointestinal motility and vagal activity in preterm newborns. [42] [43] Our research suggests that patients with constipation can benefit from abdominal massage. It is safe, simple to teach to patients and caregivers so they may do it themselves, and it has no adverse consequences. The improvement in the intervention group was also substantially greater than the control group (P<0.05) based on the findings from bowel diaries in terms of the quantity of bowel movements, length of defecation, consistency of the stool, and the sensation of incomplete evacuation. For individuals with chronic constipation, CTM along with lifestyle counseling were more effective than lifestyle counseling alone in lowering constipation symptoms and improving quality of life. [44] Constipation and abdominal pain symptoms were rendered better and bowel movements were enhanced with abdominal massage. [45] The participants found abdominal massage to be pleasurable, and after receiving treatment, they felt more comfortable with their bowel movements. It has been demonstrated that abdominal massage is a successful intervention for constipation. According to some claims, massage decreases gastrointestinal transit time, softens stool, and loads the rectum. People with persistent constipation and/or faecal incontinence, altered abdominal muscle tone, abdominal pain from cramps or gas, and issues with defecation have all been found to benefit from abdominal massage. [46] Abdominal massage is established as a secure, efficient, and non-invasive method of managing bowel function in both healthy individuals [47] and those suffering from multiple sclerosis and stroke. [48] As a result, it is conceivable that those who experience constipation will benefit from adopting abdominal massage as a method of constipation management, which is explored in our feasibility studies. [49]

V. Conclusion:
In our study, participants who received a 15-minute castor oil abdominal massage every day for 10 days experienced a significant improvement in their bowel motions and relief from constipation. It is among the safest and most efficient ways to lessen the need for laxatives and their harmful effects on the body. We can thus draw the conclusion from this study that regular castor oil abdominal massage has a favorable impact on people's bowel movements and constipation. Stronger proof will come from more research that include a control group and a larger sample size.

REFERENCES:


17. All You Should Know About Castor Oil: An Age-Old Home Remedy 2022 ;71


25. Dennison C, Prasad M, Lloyd A, Bhattacharyya SK, Dhawan R, Coyne K. The health-related quality of life and economic burden of constipation. PharmacoEconomics 2005;23(5):461e76.


About the author: Dr. Shravya C N, Post Graduate Scholar, Department of Clinical Naturopathy, Alva’s College of Naturopathy and Yogic Sciences, Moodabidri, Dakshina kannada-574227