

Nursing Practice for a Case of Acute Left Heart Failure Complicated with Colonic Impaction

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How to cite this paper: Liu, M.Z., Zhang, L., Wang, F.Y., Teng, Z.Y. and Zhu, L. (2024) Nursing Practice for a Case of Acute Left Heart Failure Complicated with Colonic Impaction. *Journal of Biosciences and Medicines*, 12, 100-107.

<https://doi.org/10.4236/jbm.2024.127009>

Received: June 3, 2024

Accepted: July 12, 2024

Published: July 15, 2024

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Abstract

Research Background: Heart failure is a type of organic heart disease caused by excessive ventricular load, leading to insufficient myocardial contractility and decreased cardiac output in the body. With the progression of the patient's condition, gastrointestinal dysfunction is frequently complicated. At the same time, the accumulation of feces in the body (colonic impaction) can also increase the burden on the patient's heart, triggering or exacerbating the occurrence or progression of heart failure. **Purpose:** this article focuses on the correlation between colonic impaction and heart failure, using the nursing experience of a case of acute left heart failure complicated by colonic impaction as an example, in order to provide clinical evidence for the care of patients with colonic impaction combined with heart failure in the future. **Method:** By using innovative thinking, the stomach tube is used to replace the enema tube, which is inserted through the anus to reach the end of the colon. By combining acupressure at points such as Zhongwan, Tianzhu, and Guanyuan, it helps promote the elimination of fecal impaction. **Conclusion:** This case reflects the innovative thinking and adaptability of nurses, providing a new clinical approach for the aggravation of the condition of long-term heart failure patients due to constipation issues. Further research in clinical practice is warranted.

Keywords

Heart Failure, Colonic Impaction, Acupoint Massage, Enema

1. Introduction

Colon impaction refers to feces remaining in the intestines for an extended period, leading to obstruction, fecal hardening, difficulty in elimination, accumulation in the colon, and the inability to pass stool despite the urge. According to

traditional Chinese medicine, the regularity of bowel movements is closely related to the balance of yin and yang in the body, the congregation of pathogenic factors, and the smooth flow of qi. In patients with heart failure, the deficiency of yang Qi and weak blood circulation can result in inadequate nourishment of the intestines, accumulation of waste, impaired gastrointestinal absorption and transmission functions, and symptoms such as fecal impaction and obstruction [1]. Patients must avoid straining during bowel movements as it can trigger arrhythmias and worsen heart failure, posing a threat to their safety and worsening their condition. This not only jeopardizes patients' lives but also increases their suffering, resulting in a decline in their quality of life [2]. Therefore, this article presents a case of nursing experience in a patient with acute left heart failure complicated by colon impaction. The aim is to provide clinical evidence for the care of patients with colon obstruction and heart failure in the future.

2. Clinical Data

2.1. General Information

Patient is a 52-year-old male who presented 2 months ago with complaints of chest tightness and shortness of breath without obvious cause, which worsened significantly with exertion and exposure to cold, making it difficult for him to lie flat at night. The symptoms were partially relieved after self-administering Musk Cardiotonic Pills, but were not taken seriously. On January 12, 2024, the patient complained of abdominal pain while attempting to defecate, but was unable to do so. This was followed by a notable exacerbation of chest tightness and shortness of breath, with orthopnea, accompanied by coughing, sputum production, and was subsequently brought to our emergency department. On admission, the patient was conscious, but appeared fatigued with profuse sweating, cyanosis of the lips and face, without nausea or vomiting, poor appetite, good sleep, decreased urine output, difficulty urinating, and constipation occurring once every 5 - 7 days. Physical Examination: Temperature: 36°C, Blood Pressure: 128/86 mmHg, Pulse: 62 beats/minute, Bilateral crackles heard in the lungs, significant abdominal pain, palpation of the abdomen revealed no tenderness or rebound tenderness, palpable fecal impaction in the right lower abdomen, decreased bowel sounds, pitting edema in both lower limbs. Auxiliary Examination: NT-pro BNP 5000 pg/ml; abdominal ultrasound shows dilatation of the right colon with intraluminal gas echoes. ECG shows sinus rhythm with low voltage in limb leads. Cardiac monitoring indicates oxygen saturation at 80%.

2.2. Treatment Process and Clinical Outcome

The patient was admitted to the hospital with a diagnosis of "acute heart failure". Cardiology consultation was immediately sought, and the patient was administered furosemide 20 mg for diuresis, dexamethasone 5 mg to improve cardiac function, and nitroprusside 50 mg to reduce cardiac load. After 5 minutes with no obvious improvement in symptoms and no urine output, furosemide 20 mg

was continued, along with 5 mg of morphine for sedation, as the patient was coughing up pink frothy sputum. Furosemide 20 mg was continuously administered, and at 15:50, the patient's symptoms of chest tightness and shortness of breath significantly improved, allowing for resting in a 30-degree position. However, the abdominal pain persisted. Further bedside abdominal CT scan revealed: dilatation of the right colon with multiple areas of high-density fecal impactions, without significant thickening of the surrounding intestinal wall. The nurse was instructed to perform an enema, and after two enemas, the fecal impaction was expelled, and the patient's abdominal pain subsided. The patient was transferred to the cardiology intervention department for further treatment to improve cardiac function, diuresis, enhance microcirculation, antiplatelet aggregation, anticoagulation, and control heart rate. The patient showed improvement and was discharged on January 25th.

3. Nursing

3.1. Correcting Heart Failure and Improving Prognosis

Upon admission, the patient presented with mouth breathing, shortness of breath, cyanotic lips, and cold, clammy skin, suggesting acute heart failure with cardiogenic shock. Therefore, the patient was instructed to sit up with legs hanging down, immediately administered oxygen via a nasal cannula with a flow rate of 10 ml/min, two intravenous lines were established, and following the doctor's orders, administered 20 mg of furosemide IV and 5 mg of dexamethasone IV. A solution of 0.9% normal saline (50 ml) with nitroprusside (50 mg) was infused at a rate of 5 ml/h via IV pump. A urinary catheter was inserted to monitor urine output, with an initial drainage of 50 ml, followed by continued observation of urine output and changes in the patient's condition. After 5 minutes, furosemide 20 mg was administered intravenously as per the doctor's instructions, along with 5 mg of morphine intravenously. Oxygen support was continued through the nasal cannula at a flow rate of 8 - 10 L/min, and furosemide 20 mg was administered intravenously again. At this point, the urine output was 200 ml. The patient was then given high-flow oxygen therapy through the nasal cannula at a flow rate of 30 L/min, with an oxygen concentration of 80%. The blood oxygen saturation level increased to 90%, and the total urine output reached 620 ml at this time.

3.2. Inheriting Innovation, Effective Enema

1 hour after the alleviation of the patient's symptoms of heart failure and shock, and ensuring the stability of the patient's vital signs, the nursing issue of addressing the patient's abdominal pain was addressed. Following the doctor's orders, a 250 ml warm water enema with 2 doses of a laxative was administered at a temperature of 39°C. The stool was observed to be watery, clear, pale yellow, with no fecal discharge. Palpation of the abdomen revealed that the location of the fecal impaction remained unchanged. Considering the high position of the

fecal impaction and the insufficient retention time of the enema solution in the body to achieve the desired effect, an 18-French gastric tube was connected to a syringe containing 30 ml of glycerin. The lubricated tip of the gastric tube was inserted into the rectum, reaching a depth of 70 cm, and the edible oil was slowly pushed into the intestine. Place the overlapping index, middle, and ring fingers of both hands on the abdomen, four inches above the navel at Zhongwan acupoint. Massage in a clockwise direction from Zhongwan to the left Tianshu, then Guanyuan, and finally the right Tianshu. Apply pressure massage when fingers touch the corresponding acupoints, with one cycle lasting 30 seconds. After 15 minutes of massage, the patient passed stool that was yellowish-black, had a sour smell, and experienced relief from abdominal pain, with the disappearance of abdominal mass upon palpation.

3.3. Care for Body and Mind, Be a Guardian Angel

After the patient's discomfort symptoms alleviated, the patient was advised to sip 100 ml of warm water to replenish fluids, ensuring adequate rest and monitoring vital signs. The following morning, health education was provided to the patient, advising them to drink a small amount of warm water upon waking, and to consume a light diet with a focus on following a low-salt, low-fat, and high-fiber dietary principles. For lunch, the patient may consume moderate amounts of fruits that aid in bowel movements such as dragon fruit, bananas, figs, and peaches. Each meal should include a small portion of vegetables such as celery, spinach, and Chinese cabbage. High-salt and high-sugar foods were to be reduced in their diet. Developing good bowel habits, such as having a fixed time for bowel movements each day, and avoiding distractions while defecating, such as using mobile phones or reading newspapers, were recommended. The patient was instructed to continue taking medications to improve cardiac function, microcirculation, and diuresis as prescribed by the doctor, without arbitrarily reducing the dosage or stopping the medication. In cases of constipation, long-term oral intake of laxatives should be avoided to prevent dependency or adverse reactions due to incorrect dosages. Medication should be taken orally under the guidance of a doctor, and alternative methods such as suppositories or enemas could also be used. The patient was taught self-regulation techniques, such as meditation and relaxation training, to improve emotional well-being. The formation of a WeChat group for patients with similar conditions was encouraged, with healthcare personnel sending daily health-related information to encourage communication among patients [3] [4].

4. Discussion

4.1. Case Analysis

The patient works as a taxi driver and has a history of hypertension for over 10 years, along with a long-term history of constipation. He has been on antihypertensive medication for years and had not passed stool for about a week before

seeking medical help. Due to his occupation involving prolonged sitting, low daily water intake, and minimal physical activity, the patient is at high risk for constipation. The patient had displayed signs of heart failure two months earlier, which were overlooked, leading to a delayed diagnosis and worsening symptoms. Additionally, the untreated constipation for a week allowed feces to accumulate in the intestine, which, combined with dehydration, resulted in hardened stool that could not be excreted. This causes contraction of the abdominal wall muscles and smooth muscles of the digestive tract when the patient strains during defecation, leading to increased intra-abdominal pressure, increased venous return, elevated central venous pressure, increased left ventricular preload, and accelerated progression of heart failure [5]. Simultaneously, compression of abdominal blood vessels raises peripheral resistance, increases left ventricular afterload, reduces cardiac output, inadequate coronary artery blood flow, myocardial ischemia and hypoxia, resulting in decreased cardiac function and ultimately triggering acute heart failure [6].

4.2. Nursing Practice Analysis

4.2.1. First Enema

The patient is slight in build, with palpable fecal impaction in the right upper abdomen. Abdominal ultrasound and CT scan results confirmed the aggregation of fecal matter at the junction of the transverse colon and descending colon. During the first enema, the fecal impaction was not expelled, and the analysis suggests that this could be due to the sedative effects and inhibition of gastrointestinal function caused by the intravenous administration of morphine during emergency treatment, leading to temporary intestinal paralysis and preventing the desired outcome of the initial enema.

4.2.2. Second Enema

The distance from the anus to the splenic flexure in a normal adult is 15 - 20 cm, and the total length of the splenic flexure is approximately 40 cm, with the descending colon being 25 cm long. During the secondary enema, considering the specific location of the fecal impaction, a regular enema tube may not reach the target area. Therefore, an 18-French gastric tube with a larger diameter and a total length of 120 cm was chosen. The gastric tube is made of soft silicone material, which will not damage the intestinal wall. The length inserted into the anus in this instance was 80 cm, enabling it to reach the front part of the descending colon. Glycerin was selected as the enema solution considering the fecal impaction's dehydration and hardness, which can cause damage to the intestines during expulsion, so glycerin was used to provide lubrication [7].

4.2.3. Mechanism of Acupoint Massage

The Zhongwan point, as the gathering point of the stomach, accumulates Qi from the internal organs in the chest and abdomen, and plays a role in invigorating the stomach, strengthening the spleen, and regulating the Qi of the inter-

nal organs. Additionally, the Zhongwan point is one of the Eight Confluent Points where Qi of the Ren Meridian converges, which can regulate the six internal organs and harmonize the Qi circulation in the Triple Burner. Located below the Zhongwan point is the lower edge of the liver and the pyloric part of the stomach, close to the lesser curvature of the stomach, showing its effectiveness in treating gastrointestinal disorders. Stimulating the Zhongwan point can dispel pathogenic factors externally and nourish the body internally, helping to invigorate the stomach, promote intestinal peristalsis, and assist in biochemical processes [8]-[10].

The Tian Shu point is a gathering point for the large intestine, responsible for receiving waste material, regulating the Middle Qi, and serving as the source of Qi and blood for the large intestine meridian. Stimulating this point has a dual regulatory effect on the intestines [11]. The Guan Yuan point is a convergence point for the small intestine, adjacent to the small intestine, bladder, and bladder. It is deep in location, where the branches of the intercostal nerves and the vasculature of the abdominal wall are present. This point can regulate the five Zang organs, nourish the six Fu organs, and address a wide range of diseases affecting the upper, middle, and lower parts of the body, making it an essential acupoint for health maintenance [12].

Therefore, the selection of these points in this case aligns with the understanding of the intestines' function and corresponds to the pathological understanding of disorders mainly related to organ dysfunction. By using acupoint massage to promote intestinal motility, the elimination of fecal impactions can be expedited, relieving the patient's symptoms. The materials and treatment methods used in this study adhere to the Helsinki Declaration and comply with ethical standards.

5. Conclusion

Heart failure combined with constipation, the interaction between the two diseases complicates clinical treatment. Dietary adjustments, limited fluid intake, and the use of diuretics and calcium channel blockers during clinical treatment for heart failure can lead to dehydration of the intestines, slow gastrointestinal motility in heart failure patients, and easily trigger constipation [13]. On the other hand, when a large amount of feces accumulates in the intestines, it can reduce the digestive function of the gastrointestinal tract, affecting the absorption of orally administered medications in heart failure patients [14]. Additionally, the accumulation of feces in the body can increase the burden on the patient's heart and raise the risk of cardiovascular events such as arrhythmias, myocardial infarctions, and sudden cardiac death. This further worsens the condition of heart failure patients [15]. In this case, under the premise of controlling heart failure, the nurse's innovative thinking was used to perform high-level intestinal enema with a stomach tube combined with stimulation of specific acupoints. This method aimed to stimulate the flow of meridians, promote Qi bene-

ficially, moisturize the intestines, and facilitate bowel movements without any adverse reactions, achieving the desired results. This approach is worthy of further exploration in clinical nursing and provides a new perspective on the care of patients with intestinal impaction. Based on this foundation, future research can innovate more efficient methods to alleviate the suffering of heart failure patients with fecal impaction and design new enema tools to provide theoretical support.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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