Post appendicitis surgery with acute pain in the PKU Muhammadiyah Hospital Wonosobo

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Abstract

Appendicitis is one of the most common cases of acute abdominal surgery, with appendectomy as the main treatment. Postoperatively, acute pain becomes the dominant complaint that can interfere with mobilization, slow down wound healing, and decrease the patient's quality of life. This study aims to describe nursing care in post-appendectomy patients with acute pain through a combination of pharmacological therapy and Benson's relaxation technique. The design used was a descriptive case study on two male patients aged 16 and 18 years old in Room Khadijah 2 of PKU Muhammadiyah Wonosobo Hospital. Interventions included the administration of analgesics (ketorolac-tramadol and metamizole) as well as training in Benson's relaxation techniques for three days. Pain evaluation was performed using the Numeric Rating Scale (NRS) before and after the intervention. The results showed a significant decrease in the pain scale: the first patient from a scale of 6 to 4, and the second patient from a scale of 5 to 2. Patients with a higher intensity of relaxation exercises showed a more optimal reduction in pain. These findings confirm that a holistic approach that integrates pharmacological and nonpharmacological therapies can improve the effectiveness of postoperative pain management. The active role of nurses in education and assistance in relaxation techniques and family support is an important factor in the success of therapy. This study recommends the integration of Benson's relaxation technique in nursing practice as a supportive modality for post-appendectomy pain control.

Keywords: Appendicitis; Appendectomy; Acute Pain; Post Surgery; Benson's Relaxation

1. Introduction

Appendicitis is one of the most common diseases that affects the digestive system and is often the main reason a person should undergo emergency abdominal surgery. An inflamed appendix or worm tuft can cause typical pain symptoms, especially in the lower right quadrant of the abdomen. Inflammation of the appendix is generally caused by lumen obstruction that triggers bacterial proliferation and increased intraluminal pressure, which eventually leads to pain, tissue necrosis, and perforation if not treated in a timely manner (Sjamsuhidajat & de Jong, 2017).

The incidence of appendicitis globally is estimated to be about 259 million cases of appendicitis in men and 160 million in undiagnosed women. In Indonesia itself, according to research by Gunawan (2018), the incidence rate of acute appendicitis reached around 24.9 cases per 10,000 people. This disease can occur in anyone, both men and women, with a lifetime chance of developing appendicitis of about 7-8% (Wijaya et al., 2020). The distribution of acute appendicitis patients in the operating room of PKU Muhammadiyah Wonosobo Hospital recorded in the medical record installation of PKU Muhammadiyah Wonosobo Hospital ranked fifth in the ten most diseases in early 2023. Waldman (2019) stated that appendicitis occurs in about 8.5% of men and 6.7% of women with a mortality rate of about 0.5%. Although the death rate due to appendicitis is less than 1%, the risk can increase to 3% if the appendix has ruptured and even reach 15% in adult patients if not treated immediately (Mudrikah & Waluyanti, 2021). Sumarni (2019) emphasized that if appendicitis is not treated appropriately, this disease can cause serious complications such as rupture of the appendix (perforation) and severe infections that spread throughout the body (sepsis), which have the potential to cause death. Therefore, the best treatment for appendicitis is through a surgical procedure of appendicitis removal called appendectomy (Melfiana, 2020).

The main medical treatment for appendicitis is through appendectomy, either laparotomy or laparoscopy. However, even though the appendix has been removed, patients still face postoperative recovery challenges, especially in the form of acute pain in the area of the surgery scar. Postoperative pain is a condition that patients always experience after undergoing surgery. The level of pain varies greatly depending on the individual, the type of surgery, and the surgical technique used. Some patients may show reactions such as grimacing, crying, or frowning, and may also display emotional responses

such as restlessness (Putri, 2019). Pain that is not handled properly can lead to sleep disturbances, increased heart rate and blood pressure, and obstacles in mobilization that slow down the wound healing process. Therefore, pain management is the main focus in postoperative nursing care.

Pain management in general is divided into two main approaches, namely pharmacological and nonpharmacological therapies. Pharmacological therapy includes the administration of analgesics such as NSAIDs and opioids. However, this approach often has limitations due to the side effects that accompany long-term use, such as gastrointestinal disorders and dependence, so the use of nonpharmacological methods is an important additional option and can support the effectiveness of medical therapy. One nonpharmacological approach that has proven effective is the Benson relaxation technique. This technique is a simple method that combines deep breathing, muscle relaxation, and the repetition of affirmative words to create a state of calm and decrease the activation of the sympathetic nervous system. Several studies have shown that this technique can reduce anxiety levels and pain perception in postoperative patients (Sitompul, 2020).

As a nurse, the ability to recognize, intervene, and evaluate pain issues is essential in providing comprehensive nursing care. The selection of the right intervention and a holistic approach not only helps to speed up the patient's recovery but also increases patient comfort and satisfaction with the health services provided. Based on clinical observations in the Khadijah 2 room of PKU Muhammadiyah Hospital Wonosobo, the author found that post-appendectomy patients generally experience acute pain that hinders their initial mobilization and functional recovery. These problems make the author feel it is important to compile this case report as a means of learning as well as a scientific contribution in efforts to develop evidence-based nursing practices. The main focus of this report is to describe nursing care in postoperative appendicitis patients with acute pain and to evaluate the effectiveness of a combination of pharmacological interventions and Benson relaxation techniques in reducing pain intensity.

2. Method

The research design used in this case report is a descriptive study with a case study approach. This approach was chosen to describe in detail the nursing care process given to two postoperative appendicitis patients who experienced acute pain. Case studies are very relevant to explore the clinical practice of nursing because they allows the author to describe the stages of study, formulation of nursing diagnosis, planning, implementation of interventions, and in-depth evaluation in certain cases.

The subjects in this report are two male patients aged 16 and 18 years old who were treated in the Khadijah 2 room of PKU Muhammadiyah Hospital Wonosobo with a medical diagnosis of appendicitis. The inclusion criteria of the subject, postoperative appendectomy patients, were in a conscious and cooperative state, were able to communicate the pain scale, and were willing to participate in nonpharmacological nursing interventions in the form of Benson relaxation techniques. Both patients experienced acute pain after appendectomy surgery.

Data collection was carried out from November 16, 2022, to March 31, 2023. The techniques used include direct observation of the patient's condition, interviews with patients and families, and documentation studies of nursing records and patients' medical records. The instrument used in pain evaluation is the Numeric Rating Scale (NRS), which is a subjective measurement scale from 0 to 10 used to assess pain intensity. The number 0 indicates no pain, while the number 10 indicates very intense pain. This instrument was chosen because it is simple, easy to understand, and has been widely used clinically.

Nursing interventions are administered by two techniques; the administration of pharmacological therapy according to the doctor's direction and Benson's relaxation nonpharmacological therapy guided by the nurse. Benson's relaxation technique is performed for 10-15 minutes by slowing your breath, closing your eyes, and saying the affirmative word. This intervention is given three times over three consecutive days, but patients can do relaxation exercises on their own with family support when they feel pain.

The intervention process is carried out systematically and involves an educational approach. The patient is explained in advance about the benefits of relaxation techniques and how to do them. During the implementation, the nurse accompanies the patient and evaluates changes in expression, posture,

and records pre- and post-intervention pain scores. After the intervention, patients are given the opportunity to convey their subjective experiences.

The collected data is then analyzed in a qualitative descriptive manner. The analysis process begins with data reduction to select relevant information, continues with the presentation of data narratively, and ends with the drawing of conclusions about the effectiveness of the intervention. The analysis was conducted to answer the main focus of this report, which is to assess whether the combination of pharmacological and non-pharmacological interventions can significantly reduce pain intensity in postoperative appendectomy patients.

3. Results and Discussion

This case study was conducted from November 16, 2022, to March 31, 2023, in the Khadijah 2 room of PKU Muhammadiyah Wonosobo Hospital. Table 1 shows that the Benson relaxation technique can reduce the intensity of the pain scale in postoperative appendicitis patients in nursing care. The gap data found in the two patients' managed cases from the aspects of study data, intervention plan, implementation, and nursing evaluation are as follows:

3.1. First Patient

Mr. MRW is 16 years old, male with a medical diagnosis of acute appendicitis. The first patient said post-op appendicitis pain, P: movement, Q: slashed and sharp, R: abdomen, S: moderate (6), T: lost arise. The patient has an allergy to ondansetron and anthrax drugs. The patient whines because he feels pain and appears to be grimacing in pain, there is a postoperative wound on the lower right abdomen wrapped in gauze. From the results of the assessment, the results of the nursing diagnosis of acute pain related to physical injury agents (surgical procedures) were obtained. After a nursing diagnosis is found, interventions and implementations are carried out to identify the location, characteristics, duration, frequency, quality, and intensity of pain, identify pain scales, identify non-verbal pain responses, monitor the side effects of analgesic use, control the environment that aggravates pain (e.g., room temperature, lighting, noise), facilitate rest and sleep, explain pain relief strategies by teaching nonpharmacological techniques to reduce pain (relaxation of benson by; positioning yourself as comfortably as possible, closing your eyes, relaxing the whole body, inhaling from the nose hold for a moment for 3 seconds then slowly exhaling it from the mouth by expressing the affirmative), collaborating to administer ketorolac injection 30 mg/ 8 hours and tramadol (drip) 100 mg/ 8 hours through IV. Evaluation of the actions on November 16 to 18, 2022; pain complaints gradually decreased from the previous scale of 6 (moderate) to a scale of 4 (moderate).

3.2. Second Patient

The second patient, 18 years old Mr. A, is male with a medical diagnosis of acute appendicitis. Patients say post-op appendicitis pain is P: movement, Q: slashing and sharp, R: abdomen, S: moderate (5), and T: lost arise. The patient has no history of drug allergies. The patient appeared to be grimacing in pain, there was a postoperative wound on the lower right abdomen wrapped in gauze. From the results of the assessment, the results of the nursing diagnosis of acute pain related to physical injury agents (surgical procedures) were obtained. After a nursing diagnosis is found, interventions and implementations are carried out to identify the location, characteristics, duration, frequency, quality, and intensity of pain, identify pain scales, identify non-verbal pain responses, monitor the side effects of analgesic use, control the environment that aggravates pain (e.g., room temperature, lighting, noise), facilitate rest and sleep, explain pain relief strategies by teaching nonpharmacological techniques to reduce pain (relaxation of benson by means of; position yourself as comfortably as possible, close your eyes, relax the whole body, inhale from the nose hold for a moment for 3 seconds then slowly exhale from the mouth by expressing the affirmative), collaborate the administration of 500 mg/ 8 hours of antrain injection through IV. Evaluation of the actions on March 29 to 31, 2023; pain complaints decreased from the previous scale of 5 (moderate) to scale 2 (mild).

Table 1. Comparison of Pain Scales Before and After Benson Relaxation Techniques

Patient	Day 1		Day 2		Day 3	
	Pre	Post	Pre	Post	Pre	Post
1	6	6	6	5	5	4
2	5	4	4	4	4	2

3.3. Discussion

3.3.1. Assessment

After an assessment was carried out on November 16, 2022, at 14.30 WIB, the first patient (Mr. MRW) complained of post-op appendicitis pain is P: movement, Q: slashing and sharp, R: abdomen, S: moderate (6), T: loss of arise. The patient whines because he feels pain, appears to be grimacing in pain, there is a postoperative wound on the lower right abdomen wrapped in gauze, an RL 20 gtts infusion is installed in the right hand, blood pressure: 138/98 mmHg, pulse: 105x/minute, temperature: 36.6°C and breathing: 24x/minute. The results of blood laboratory tests on November 15, 2022 showed the number of leucocytes 15.09 10^3/µL (high), platelets 301 10^3/µ (high), granulocytes 92% (high), lymphocytes 6.1% (low). The therapy provided was the administration of ketorolac analgesics 30 mg/ 8 hours and tramadol (drip) 100 mg/ 8 hours through IV because he had an allergy to anthrax pain medications. Previously, antrain analgesic therapy had been given and allergic symptoms appeared in the patient shortly after the drug was given. The patient experiences a reddish rash on several parts of the body such as the hands, face and neck. The doctor in charge replaced the pain medication with ketorolac as much as 30 mg/ 8 hours combined with tramadol 100 mg/ 8 hours through IV.

After an assessment was carried out on March 28, 2023 at 14.30 WIB, the second patient (Mr. A) complained of post op appendicitis pain, P: movement, Q: slashing and sharp, R: abdomen, S: moderate (5), T: lost arise. The patient appeared to be grimacing in pain, there was a postoperative wound on the lower right abdomen wrapped in a gauze, a 20 gtts RL infusion was installed in the right hand, blood pressure: 120/88 mmHg, pulse: 101x/min, temperature: 36.4°C, breathing: 22x/min. Blood laboratory results dated March 27, 2023 showed the number of leucocytes 12.49 10^3/µL (high), platelets 194 10^3/µ, granulocytes 87% (high), lymphocytes 8.0% (low). The therapy given was analgesic antrain (metamizole) 500 mg/8 hours through IV.

Appendicitis can occur at any age, but it is most commonly found in 10 to 30 years of age and is at high risk in men. The above assessment data is in line with the research "The Relationship Between Age and Gender on the Incidence of Appendicitis at Dr. Pirngadi Hospital Medan City". The results of the study obtained based on the age of the majority of the research sample were aged 15-30 years, namely 35 people (61.4%). Based on gender, the majority of the research sample was male, namely 39 people (68.4%) (Zebua et al., 2022).

3.3.2. Nursing Diagnostic Analysis

Based on the data obtained from the results of the study, both patients led to the enforcement of the diagnosis of acute neurological disorders related to physical injury agents (surgical procedures). Acute pain is a sensory or emotional experience related to actual or functional tissue damage, with a sudden or slow onset and mild to severe intensity that lasts less than 3 months (SDKI DPP PPNI Working Group Team, 2017).

The authors prioritize the problem of acute pain nursing in relation to physical injury agents (surgical procedures) because subjective data were found in the first patient: patients say post-op appendicitis pain is P: movement, Q: sharp and sharp, R: abdomen, S: moderate (6), T: absent arise. The patient whines because he feels pain, appears to be grimacing in pain, there is a postoperative wound on the lower right abdomen wrapped in gauze. Subjective data on the second patient: patients say post-op appendicitis pain is P: movement, Q: slashing and sharp, R: abdomen, S: moderate (5), T: lost arise. The patient appeared to be grimacing in pain, there was a postoperative wound on the lower right abdomen wrapped in gauze.

Patients who undergo appendectomy surgery due to appendicitis generally experience pain in the surgical wound and will increase pain when moving. The above assessment data are in line with the symptoms and signs of subjective acute pain, namely complaining of pain, while the objective signs and symptoms include grimacing, increased pulse frequency, and increased blood pressure. According to the author, in the data of this study, similarities were found in pain complaints after appendectomy surgery, pain that occurred due to surgery, and differences in pain scales were found in both patients (SDKI DPP PPNI Working Group Team, 2017).

3.3.3. Nursing Intervention Analysis

Interventions include objectives, outcome criteria, and actions in the nursing diagnosis of acute pain related to physical injury agents (surgical procedures). In the case of Mr. MRW and Mr. A, the author planned the action for 3x24 hours, after the action was carried out for 3x24 hours, it is hoped that the acute pain problem can be resolved with the outcome criteria: pain complaints decrease, grimacing expressions decrease, sleep difficulties decrease, and protective attitudes decrease (SLKI DPP PPNI Working Group Team, 2019). The interventions carried out are to identify the location, characteristics, duration, frequency, quality, and intensity of pain, identify pain scales, identify non-verbal pain responses, to determine the need for further intervention by knowing the development of pain. Monitor the side effects of analgesic use for allergic reactions and monitor for excessive side effects to the given medication. Control environments that aggravate pain (e.g., room temperature, lighting, noise), facilitate rest and sleep, to meet the physiological needs of rest. Explain pain relief strategies by deep breathing, teach nonpharmacological techniques to reduce pain (relaxation of benson by means; positioning yourself as comfortably as possible, closing the eyes, relaxing the whole body, inhaling from the nose hold for a moment for 3 seconds then slowly exhaling it from the mouth by expressing a positive word), collaborating on the administration of ketorolac injection 30 mg/ 8 hours and tramadol (drip) 100 mg/ 8 hours through IV, to help control and reduce pain both with and without medication (SIKI DPP PPNI Working Group Team, 2018).

The results of research that has been conducted at Fatmawati Hospital Jakarta found that there is an effect on the administration of analgesics in reducing the pain scale (Anugrah et al., 2021). Based on this research, the author conducted the same intervention to Mr. MRW by collaborating on the administration of ketorolac and tramadol analgesics. Meanwhile, according to the study "Single dose dipyrone (metamizole) for acute postoperative pain in adults" conducted in Oxford, UK, it was found that there was an effect with the administration of the analgesic antrain (metamizole) or also called dipyrone (Hearn et al., 2016). Based on the results of the study, the author conducted the same intervention to Mr. A by collaborating on the administration of analgesics (metamizole/dipyrone).

The results of research that has been conducted at Porsea Hospital found that there is a significant influence of the Benzon relaxation technique on the pain scale in postoperative appendicitis patients (Manurung et al., 2019). Based on the study, the author conducted the same intervention to Mr. MRW and Mr. A with the aim of whether there are similarities in results or whether there is a difference between the journal and the actions taken by the author at PKU Muhammadiyah Wonosobo Hospital. Benson's relaxation therapy is carried out starting from November 16, 2022 to March 31, 2023. This intervention was carried out in 2 different time periods, from 16 – 18 November 2022 in the first patient and 28 – 31 March 2023 in the second patient. This technique is given before the administration of analgesic drugs, before and after the administration of the relaxation technique, pain scale measurements are carried out with the Numeric Rating Scale (NRS).

3.3.4. Nursing Implementation Analysis

Based on research that has been conducted at Dr. Kariadi Semarang Hospital, it was found that a significant influence of the Benzon relaxation technique on the reduction of pain scale in postoperative appendicitis patients was found. The results of the study were obtained by the two patients who were the research subjects willing and able to perform the Benson relaxation technique independently, namely with the result of reducing the intensity of the pain scale from moderate to mild scale with a pain scale 2 (Wainsani & Khoiriyah, 2020). This study is in line with research that has been conducted at Porsea Hospital, it was found that there is a significant influence of the Benzon relaxation technique on the pain scale in postoperative appendicitis patients. The results of the analysis of the pre-experimental and post-experimental t-tests obtained a calculation of 95% significance level with a value of $p = 0.00$, which means that there is a difference in pain scale in post-operative appendectomy patients (Manurung et al., 2019).

The implementation of nursing given to both patients was almost the same, only differing in the administration of pharmacological therapy of the patients. The pharmacological therapies given to the first patient of Mr. MRW were analgetic therapy of ketorolac 30 mg/ 8 hours and tramadol (drip) 100 mg/ 8 hours via IV, while in the second patient Mr. A was given analgetic therapy of antrain (metamizole) 500 mg through IV. The non-pharmacological therapy given to both patients was the

Benson relaxation technique. From the implementation that has been carried out above, it can be concluded that during the 3 days of collaboration between analgesics and Benson relaxation techniques, the first patient and the second patient experienced a decrease in pain scale intensity, from moderate to mild scale (scale 3 and scale 2). This is also in line with research in Metro City with an implementation for 3 days carried out on Mrs. K, before relaxation was obtained, moderate pain was obtained on a scale of 6 and after implementation for 3 days the pain scale decreased to a mild scale, namely a scale of 2 (Septiana et al., 2021).

3.3.5. Nursing Evaluation Analysis

Case studies conducted for 3 days in each managed case can evaluate the nursing actions that have been taken. The first patient said that pain in the post op area decreased when performing the Benson relaxation technique, P: there was a stitch wound ±7 cm, Q: throbbing, R: lower right abdomen, around the post op wound, S: scale 4, T: lost embossed, the patient seemed to occasionally grimace in pain, the Benzon relaxation technique had been performed, ketorolac 30 mg/ 8 hours had been given ketorolac via IV. From the results of the evaluation, it was said that the diagnosis of acute pain had not been resolved on the third day after implementation, so the intervention plan was continued by continuing to monitor the pain scale, monitor the non-verbal pain response, encourage patients to do Benzon relaxation techniques independently, collaboration in administering ketorolac injection 30 mg/8 hours through IV.

In both patients, the patient said that the pain in the post op area decreased when performing the Benzon relaxation technique, the patient said that he often practiced the relaxation technique independently, P: there was a suture wound ± 6 cm, Q: throbbing, R: lower right abdomen, around the post op wound, S: scale 2, T: lost arise, the patient appeared to grimace occasionally, the benzon relaxation technique had been performed, he had been given 500 mg/8 hours of antrain through IV. The diagnosis of acute pain in patients on the second day of the 3rd is still unresolved, so the implementation continues by monitoring the pain scale, monitoring non-verbal pain response, encouraging patients to perform Benzon relaxation techniques independently, and collaborating to administer 500 mg/8 hours of antrain injection through IV.

The second patient experienced a faster reduction in pain compared to the first patient with the final result of the pain scale in the first patient on a scale of 4 and the second patient on a scale 2. This can happen because non-pharmacological pain management with a more frequent intensity of training can reduce pain faster (Wainsani & Khoiriyah, 2020). Belief in the Almighty can also cure like medicines. Praying and praying are spiritual powers that can help overcome pain and discomfort characterized by muscle relaxation, a calmer and more comfortable mood, and happiness (Zebua et al., 2022).

A decrease in the intensity of the pain scale may be influenced by the family's involvement in pain management. Other studies supported the training and involvement of patients and families in pain management by confirming family members to provide support for patients, improving their ability to understand the nature of postoperative pain. Involving family members to evaluate pain intensity and applying nonpharmacological pain control methods leads to patients taking fewer opioid analgesics to reduce pain intensity as well as better pain control (Rahmani et al., 2020).

4. Conclusion

The results of nursing care that have been given to patients with acute post-op appendicitis pain in the first patient Mr. MRW in the pain assessment were obtained on a pain scale of 6, there was a post op wound of ± 7 cm, had a history of analgesic allergies (antrain) while in the second patient Mr. A obtained a pain scale of 5, there was a post-op wound of ± 6 cm and there was no history of drug allergies. The main diagnosis that appears in both managed cases is acute pain related to physical injury agents (surgical procedures). Nursing care plans in acute pain diagnosis are associated with physical distressing agents with outcome criteria on decreased pain levels (SLKI), pain management interventions (SIKI). Nursing actions taken to overcome problems in the first patient and the second patient are to identify the location, characteristics, duration, frequency, quality, and intensity of pain, identify the scale of pain, identify nonverbal pain responses, monitor the side effects of analgesic use, control the environment that aggravates pain, facilitate rest and sleep, explain pain relief strategies with

Benzon relaxation, teach non-pharmacological techniques To reduce pain (relaxation of Benzon by; positioning yourself as comfortably as possible, closing your eyes, relaxing the whole body, inhaling from the nose hold for a moment for 3 seconds then slowly exhaling it from the mouth by expressing a positive word), collaborate on the administration of analgesic injections. The results of the evaluation obtained from the nursing care that has been carried out in both cases are that the acute pain nursing problem has not been resolved, there is a difference in the pain scale on the 3rd day, namely the first patient with a pain scale 4 while the second patient with a pain scale 2. The difference in pain scale was caused by the difference in intensity of practicing the Benzon relaxation technique that had been taught to the two managed patients.

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