Analysis of perioperative care using the finger hold technique to reduce postoperative pain in laparotomy patients

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ABSTRACT

Laparotomy is a surgical procedure involving a large incision in the abdominal wall to provide direct access to the abdominal cavity and the organs within it. Cholecystectomy is an operation to remove the gallbladder. The most common complaint in patients following a laparotomy is acute pain. One way to reduce the intensity of pain is the application of non-pharmacological therapy, namely the Finger Hold technique. The Finger Hold, or finger-grip relaxation therapy, can help the body, mind and spirit to achieve relaxation and reduce the intensity of pain. This case study aims to investigate the application of perioperative care using the Finger Hold intervention to reduce pain in patients following laparotomy. The method used in this study is a case study of patients with a diagnosis of cholelithiasis, providing nursing care during the pre-operative, intra-operative and post-operative phases. The results of this case study indicate that the application of perioperative care involving the finger hold intervention can reduce pain intensity; prior to the intervention, the pain scale was 5 (moderate pain), and following the intervention, the pain scale decreased to 2 (mild pain). It can therefore be concluded that the application of the finger hold is effective in reducing pain in patients following laparotomy.

Keywords: Finger Hold, Perioperative Care, Pain, Laparotomy

INTRODUCTION

Cholelithiasis, or gallstones, are hardened deposits of digestive fluid that can form in the gallbladder and are composed of cholesterol, bilirubin, and bile. The gallbladder is a pear-shaped organ located just below the liver in the upper right side of the abdomen. The gallbladder collects and stores a digestive fluid produced by the liver called bile, which is released into the small intestine (Garin Jhovany et al., n.d.).

In Indonesia, the prevalence of gallstones is thought to be lower than in Western countries. However, with the trend towards a sedentary lifestyle, gallstones are likely to become a health

problem in Indonesia in the future, deserving attention. Most patients with gallstones are asymptomatic. In patients with incidentally discovered asymptomatic gallstones, the chance of developing symptoms or complications is 1% to 2% per year. Asymptomatic gallstones found in a normal gallbladder and biliary tract do not require treatment unless symptoms develop. However, approximately 20% of these asymptomatic gallstones will develop symptoms within 15 years of follow-up (Farooqui et al., 2026).

Cholelithiasis management is divided into two categories: non-surgical and surgical. Non-surgical management can be performed with supportive care and diet. 80% of cholelithiasis patients recover with rest, intravenous fluids, nasogastric suction, analgesics, and antibiotics. Surgical management is divided into laparotomy and laparoscopic cholecystectomy. Laparoscopic cholecystectomy is the gold standard for patients with symptomatic cholelithiasis. Possible complications include bile duct injury, and the most common indication is recurrent biliary colic, followed by acute cholecystitis (Rafilia Adhata et al., 2022).

The surgical process is divided into three crucial stages: the pre-operative phase, which includes patient preparation; the intra-operative phase, during which the surgical procedure takes place; and the post-operative phase, which is the recovery period after the surgery is completed. Patients undergoing post-laparotomy surgery typically experience several complications, including the risk of wound infection, impaired skin integrity, bleeding, and severe pain. Acute pain is the most common complaint among patients following post-laparotomy surgery. Pain is a highly unpleasant sensory and emotional experience caused by stimulation of sensory nerve endings. The pain experienced by patients after surgery is acute pain caused by the surgical incision (Afriani, 2023).

Pain management is a technique used in the healthcare industry to minimize pain. There are two approaches to pain management: pharmacological and non-pharmacological. One non-pharmacological therapy for acute post-laparotomy pain is the finger-hold relaxation technique. The finger-hold relaxation technique is very simple and easy for anyone to perform. This technique involves the fingers and the flow of energy within the body. Holding the fingers while deep breathing (relaxation) for 3 to 5 minutes can reduce and heal physical and emotional tension.

According to a study by Alahtiar, Fitri, & Pakarti (2025), entitled "Implementation of Finger-Hold Relaxation on the Pain Scale in Post-Laparototomy Patients," results showed a decrease in pain

after finger-hold relaxation therapy in post-laparotomy patients, from a 6 to a 2 in the first subject and from a 5 to a 1 in the second subject. According to research conducted by Haura Syafa Rizqa & Rochmawati (2023) entitled "Evidence based case report (EBCR): finger grip therapy intervention in reducing pain scale in post-laparotomy patients" it states that finger grip relaxation therapy is a useful and beneficial therapy in reducing the pain scale felt by post-operative patients.

Based on the background and preliminary study results obtained by the author during his service at Royal Prima Medan Hospital, obtained from observations and interviews with patients with acute postoperative pain nursing problems. The results of the observations and interviews found that the management of acute pain nursing problems is still dominated by pharmacological drug approaches. However, non-pharmacological methods such as finger-grip relaxation have not been implemented in daily practice. Based on this, the author is interested in implementing the finger-grip relaxation technique to reduce pain in post-laparotomy cholecystectomy patients.

METHOD

The method used in this study was a case report. The author provided perioperative nursing care to a patient with cholelithiasis who was undergoing a laparotomy cholecystectomy procedure, covering pre-operative, intra-operative, and post-operative stages. Data collection in this case study was conducted through observation and direct assessment of the patient.

RESULTS AND DISCUSSION

Patient named Mrs. J (37 years old) entered Royal Prima Medan Hospital through the Emergency Room on April 16, 2026 at 10:30 WIB. Entered treatment room 12 B on April 16, 2026 at 13:15 WIB. Then the client entered the operating room on April 17 at 10:00 WIB to undergo Laparotomy Cholecystectomy surgery. The main complaint of admission to the hospital was pain in the upper right abdomen (P: the patient said pain in the upper right abdomen, the pain was felt to increase during activity and the pain was reduced when the patient was lying down/not doing activity. Q: the pain was felt to come and go, the pain was like being stabbed by a sharp object. R: pain in the upper right abdomen. S: Pain scale 7 (severe pain), T: pain lasted ±3-5 minutes). Other complaints were also felt when the patient entered the pre-operative room, the patient looked restless and excessively anxious, the patient's face looked tense and grimaced. Consciousness Composmentis, GCS 456, acral felt warm, wet, red, BP: 148/74 mmHg, N:

110x/minute, S: 36.5OC, RR: 21x/minute, SpO2 98% CRT < 2 seconds, no edema in the extremities, no wheezing or rhonchi, BB 58 kg and TB 157cm. The patient said he had no history of drug allergies, and had no history of past and family illnesses, the patient said he felt afraid and anxious when the surgery was to be performed. The surgery was carried out in the Central 1 OC.

After the patient was observed in the Pre-Operative room, at 10:20 a.m. WIB, the patient was transferred to the OT 1 room by the IBS nurse. Then the anesthesiologist and the circulating nurse moved the patient from the patient's bed to the operating table and positioned the patient in a supine position. After that, the anesthesiologist repositioned the patient in the Fowler's position to make it easier for the anesthesiologist to perform the anesthetic procedure using general anesthesia. After the anesthesiologist had finished anesthetizing the patient, the circulating nurse reconfirmed the location to be operated on, then the instrument nurse performed skin preparation in the operating field area after which the instrument nurse was assisted by the assistant operator to perform draping and reduce the area to be operated on by clamping the drape with a clamp. Then the circulating nurse conducted a time out by ensuring and reconfirming the patient's identity starting from the patient's name, patient's age, patient's diagnosis, type of procedure, and re-stated the duties of each team member, namely the operator, assistant operator, instrument nurse, circulating nurse, anesthesiologist, and anesthesiologist.

Then the instrument nurse reconfirmed the number of gauze and instruments used, after everything was ready, the operation was started by the operating doctor at 10.45 WIB, the operation procedure lasted approximately 45 minutes, after the operation procedure was completed, the circulating nurse signed out by recounting the number of instruments, the number of gauze, the number of needles, in order to prevent them from being left behind in the patient's body, then the operator and assistant operator sutured the subcutaneous tissue to the skin, then smeared the sutured wound using 0.1% gentamicin sulfate ointment and coated the wound with lomatuell then covered the wound with gauze and plastered it using hypafix.

The Laparotomy Cholecystectomy operation was completed at 12.15 WIB and the patient was discharged from the OT-1 room and was wheeled to the PACU (Post Anesthesia Care Unit) for further observation at 12.20 WIB. After arriving at the PACU, the patient's general condition and vital signs were re-observed with the results of SpO2 98%, BP 138 mmHg, HR 106 x / minute, RR 21 x / minute, T 35º C. The patient complained of cold and shivering after the operation was completed and after a few minutes the patient grimaced and complained of pain in the surgical

scar (P: the patient said the pain was due to the surgical scar. Q: the pain was felt to come and go, the pain was like being stabbed by a sharp object. R: Pain felt in the surgical wound. S: Pain scale 5 (moderate pain), T: pain lasts ± 2-3 minutes). Based on the results of the assessment that had been carried out, 5 nursing diagnoses were obtained for Mrs. J, namely:

Anxiety Related to Situational Crisis

Anxiety is an enthusiastic reaction to an evaluation that describes a condition of stress, tension, fear, and anxiety combined with different life circumstances such as infection problems. Anxiety can be caused by excessive stress in various occasions in daily life. Anxiety that seems difficult to control and is associated with physical side effects, such as muscle tension, difficulty sleeping and restlessness (Hastuti et al., 2024). From objective data, Mrs. J's face appeared tense, restless, blood pressure increased, and the patient continued to ask about the conditions and process of the operation to be undergone. According to the author's assumption, anxiety occurs due to a lack of understanding and explanation regarding the surgical procedure, where the patient is also undergoing surgery for the first time and the patient feels afraid if the operation fails.

Based on the implementation targets, the author carried out several nursing actions, namely: 1) Monitoring the patient's anxiety level 2) Explaining the procedures to be carried out and the sensations during the operation 3) The nurse tried to divert the patient's attention regarding the operation by inviting the patient to chat before the operation was carried out 4) Practicing deep breathing relaxation techniques.

Risk of Infection Associated with Invasive Procedures

A laparotomy cholecystectomy is an open surgical procedure that disrupts the integrity of the skin and tissue, increasing the risk of surgical site infection. The author assumes that infection can arise from open wounds caused by incisions in Mrs. J's abdomen. Failure to maintain wound and surgical site hygiene can lead to infection.

Based on the implementation objectives, the author performed several nursing actions: 1) Assessing the surgical wound before applying a bandage using gauze and hypafix; 2) Classifying the surgical wound based on the CDC (Guideline for the Prevention of Surgical Site Infection); and 3) Preventing open wound contamination.

The Risk of Hypovolemia is Related to the Loss of Active Body Fluids in Patients.

Laparatomy is a major surgical procedure involving incisions in the layers of the abdominal

wall, which can cause complications such as bleeding, infection, seroma and hematoma formation, wound dehiscence, chronic pain and skin numbness (Karunarathna et al., 2023).

According to the author's assumption, the surgical procedure performed on Mrs. J really needs to be paid attention to and needs to be observed in terms of vital signs and fluid output and input, where during this surgical procedure there is the potential to cause a large incision wound resulting in the loss of quite a lot of blood, which carries the risk of causing wound infection and hypovolemia or lack of fluids in the body.

Based on the implementation target, the author carried out several nursing actions, namely: 1) Monitoring the patient's vital signs BP: 128/88 mmHg, N: 83x/minute RR: 22x/minute SpO2: 100%, 2) Providing 2 bottles of Nacl 500 infusion fluid and one bottle of RL 500 in collaboration with the anesthesiologist. 3) Monitoring the patient's urine by looking at the amount of urine excreted, which is 700 cc and the color of the urine is clear yellow.

Acute pain related to physical injuring agents

One of the things that will happen to post-operative patients is pain, which is one of the effects of the surgical process. The pain experienced by post-operative patients is acute pain. Acute pain seriously threatens the client's post-operative healing, hindering the client's ability to actively participate in mobilization, rehabilitation, and prolonging hospitalization (Utami & Khoiriyah, 2020). According to the authors, managing and monitoring pain levels is crucial, as if pain is not managed properly, it can lead to serious consequences.

According to the author's assumption, acute pain can occur post-operatively as a result of the surgical procedure. If pain is not treated, it can hinder and slow down the post-operative healing process. Therefore, the author takes the diagnosis of acute pain as a priority diagnosis. Management of pain experienced by post-operative patients can be done with 2 interventions, namely pharmacological and non-pharmacological. One of the non-pharmacological therapies that can be done by nurses in managing post-laparotomy pain is the finger-hold relaxation technique. The finger-hold relaxation technique is a relaxation technique that is easy to do by anyone who is related to the fingers and the flow of energy in the body and its actions are simple. The finger-hold relaxation technique is also often called the Finger Hold. The finger-hold relaxation technique is done by holding the fingers while regulating the breath which is done for approximately 3-5 minutes. Finger-hold relaxation can reduce both emotional and physical tension, because when

holding the fingers it will warm the entry and exit points of the meridian energy located on the fingers (Perwira Kusuma et al., 2024).

In this case, the author performed the finger grip relaxation technique on patient Mrs. J for approximately 4 hours while the patient was observed in the PACU (Post Anesthesia Center Unit). Finger grip relaxation was carried out for 15 minutes at a time, then after the finger grip relaxation the patient's pain level was observed again using the Numeric Pain Rating Scale with the results of the pain level decreasing which was initially on a scale of 5 then after being given the finger grip relaxation intervention the pain scale became 2. This proves that the finger grip relaxation technique is very effective in dealing with acute pain in post-operative patients with Laparatomy cholecystectomy This is in accordance with the writing that has been done by "Larasati & Hidayati, (2022) with the title "Finger grip relaxation in post-operative patients". The results of the writing state that the finger grip relaxation technique is effective in reducing the pain scale after laparotomy surgery. According to the research of Rifti Ekawati et al., (2022) with the title "Application of finger grip relaxation to reduce post-operative pain in patients with bilateral chocolate cysts" states that the technique of applying finger grip relaxation therapy can reduce the pain scale of post-operative laparotomy patients, namely from moderate pain to mild pain.

The risk of hypothermia is related to the effects of pharmacological agents (anesthetic procedures) and room temperature.

Hypothermia after general anesthesia is a common complication that can seriously impact patient recovery. Hypothermia is defined as a decrease in core body temperature below 36°C and can occur due to impaired thermoregulation during anesthetic procedures, exposure to cold operating room environments, and long surgical duration (Welong S. Surya & Nilawati Nilawati, 2025). Therefore, the authors assume that when Mrs. J is exposed to low environmental temperatures and the body's control of thermoregulation during the anesthetic procedure, it can pose a risk of hypothermia, which if left untreated can increase the risk of surgical wound infection, coagulation disorders, and increase oxygen requirements.

Based on the implementation targets, the author carried out several nursing actions, namely: 1) Monitoring signs and symptoms due to hypothermia, 2) performing passive warming on the patient, 3) Observing vital signs, 4) Monitoring the patient's environmental temperature.

CONCLUSION

After the intervention was performed on Mrs. J, it can be concluded that perioperative care with the application of finger hold can reduce pain intensity in post-laparotomy cholecystectomy patients. This is proven by the results of the application on Mrs. J where the pain scale before the intervention was a pain scale of 5 (Moderate) and after the intervention the pain scale was reduced to a scale of 2 (Mild).

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