

## **Intervention of Finger Hold Relaxation Technique on Reduction of Pain Scale in Cholelithiasis Patients After Cholecystectomy Surgery**

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### **Article Information**

Revised: February 00,00

Available online: March 00,00

### **Keywords**

Finger Hold Relaxation, Pain, Post Surgery.

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### **ABSTRACT**

Background: Cholelithiasis, or what is known as gallstones, is a condition that often occurs in the gallbladder. This disease is more often found in individuals with obesity, diabetes mellitus, and high cholesterol levels. In Indonesia, around 1 million patients are diagnosed with cholelithiasis every year, and around two-thirds of them require surgery. Post-surgery, pain is a common complaint experienced by patients. Pain management can be done through pharmacological and non-pharmacological therapy. One effective non-pharmacological therapy is the finger hold relaxation technique or finger grip therapy. This technique provides benefits to the body, mind, and soul, so it can help reduce pain through the relaxation process. Objective: To determine the effect of the finger hold relaxation technique on reducing pain in post-cholecystectomy patients. Method: Using the case study method where the researcher manages 1 case. Research Results: After using the finger hold relaxation technique, the patient reported a decrease in the pain scale from scale 7 to scale 1. This reduction was achieved within three days with the support of administering analgesic drugs. Conclusion: The finger hold relaxation technique reduces the pain scale in post-cholecystectomy patients.

## INTRODUCTION

The high level of population density in urban areas affects the ability of individuals to adapt to the environment and situation they are facing. This condition has a direct impact on public health. People's behavior patterns and lifestyles tend to change according to their ability to adapt to various conditions. One form of adjustment is consuming fast food that is high in fat and cholesterol. This type of diet can trigger various health problems, including cholelithiasis or gallstones (Wulandari, 2023).

Cholelithiasis, better known as gallstones, is one of the most common disorders of the gallbladder. This condition is generally caused by factors such as obesity, diabetes mellitus, and high cholesterol levels. Gallstones are usually formed from a mixture of bile pigments and cholesterol, which arise as a result of excess cholesterol in the bile (Pimpale et al., 2019)

The World Health Organization (WHO) reports that the prevalence of cholelithiasis in the world reaches 11.7% (WHO, 2017). The incidence rate of cholelithiasis varies from country to country and among various ethnic groups living within a country. This condition is most commonly found in the Pima Indians in North America, the Caucasian race in the United States, and the Chilean population. In contrast, the prevalence of cholelithiasis is relatively low in countries such as Singapore and Thailand (Fujita et al., 2023). In the United States, cholelithiasis is the most common and most expensive digestive disease in terms of treatment, with more than 20 million people estimated to suffer from this condition (Febyan, 2020)

In Asian countries, the prevalence of cholelithiasis ranges from 3% to 10%. Based on the latest data, the prevalence of cholelithiasis in Japan is around 3.2%, in China 10.7%, in North India 7.1%, and in

Taiwan 5.0%. It is estimated that the rate of cholelithiasis and biliary tract diseases in Indonesia is comparable to other countries in Southeast Asia (Tarigan, 2020).

About one million people in Indonesia Every year, are diagnosed with cholelithiasis; Of those, about two-thirds require surgery. The World Health Organization (WHO) reported that there was a significant spike in the number of surgical patients in 2018. There were 140 million patients in all hospitals globally in 2011, and by 2012, that number is expected to increase to 148 million. Gallstone disease is not well understood in the West Java region due to a lack of research. Due to the presence of the hormone estrogen, women are about 2.6 times more likely than men to develop gallstone disease (Febyan & Ruswhandi, 2020)

Based on medical record data from Dr. Soekardjo Hospital in Tasikmalaya City, the cholelithiasis disease is recorded as one of the ten most common diseases in Mitra Batik 4. Of these, there were 28 patients with an incidence rate of 4.3% between April and August 2023. In addition, records from the Central Surgical Installation of Dr. Soekardjo Hospital in Tasikmalaya City show that during the period from January to August 2023, several patients underwent cholecystectomy surgical procedures, both laparoscopic and laparotomic.

The diagnosis of cholelithiasis can be made without surgery through the ESWL method, or by surgery using laparoscopic techniques or laparotomy for cholecystectomy. Cholelithiasis is usually detected at an advanced stage when the examination is performed, as most patients do not show symptoms that require immediate surgery. Cholecystectomy through laparotomy became the gold standard for treating patients with asymptomatic cholelithiasis that had large stones (with a diameter of more than 5 mm) that blocked the flow of bile to the digestive tract. Each year, about one

million people need treatment for cholelithiasis, and more than 600,000 of them require cholecystectomy procedures (Adriani et al., 2022)

Pain is a side effect that often occurs after surgery. Although surgical scars can be a cause of postoperative discomfort, other factors may also play a role. If the healing process is normal and the postoperative wound heals well, there will be no significant scarring or scarring (Daulay & Simamora, 2019).

Pain after surgery is a difficult experience that can change a person's way of life and mental health. After surgery, acute pain must be treated properly to prevent problems such as neurogenic shock. Acute pain can also increase blood pressure, heart rate, and respiratory rate. When acute pain occurs, it must be treated properly once to prevent problems such as neurogenic shock because acute pain can increase blood pressure, heart rate, and respiratory rate. If the patient's pain is not managed, it can extend their stay in the hospital and hinder their rehabilitation. This is the result of the client focusing all his attention on his pain (Angraini Simamora et al., 2021)

The basis for nurse nursing intervention in pain management is this. In handling these cases, nurses play a role in the curative and rehabilitative elements. To provide comprehensive care, healthcare providers, especially nurses, must have the awareness to deal with problems that arise from a biological, psychological, social, and spiritual perspective. This can be achieved through the nursing care process, which includes assessment, data analysis, intervention, implementation, and evaluation (Ditjen Yankes, 2022)

Pain management can be done with two approaches, namely pharmacological and non-pharmacological therapy. Some of the effective non-pharmacological methods for

reducing pain include acupuncture, affective touch, therapeutic touch, acupressure, relaxation and visualization techniques, hypnosis, cold and warm compresses, skin stimulation or massage, and TENS (transcutaneous electrical nerve stimulation) (Frida et al., 2017).

Based on a study conducted in 2021 by Rosiska, postoperative patients in the operating room of Major General H.A. Thalib Kerinci Hospital reported a decrease in discomfort levels. After the application of the finger grip relaxation technique, more than 50% of the respondents revealed that they felt mild pain, which indicates that the finger grip relaxation technique has a positive effect in reducing pain in patients who are recovering from post-surgery (Rosiska et al., 2021)

The finger grip relaxation technique is one of the simple methods that can be used to reduce the intensity of discomfort. This method, which is easy for anyone to apply, involves using the fingers and the flow of energy in the body to reduce postoperative pain. Within two to five minutes, breathing and relaxation exercises can be done by grasping the fingers, which can help create a sense of comfort, focus, and readiness in facing the situation. This technique works by reducing physical and emotional tension through the grip of the fingers while taking a deep breath. The grip of the fingers serves to warm the energy entry and exit points in the meridians, or energy channels, found in the fingers of the hand (AZ et al., 2022)

According to Larasati (2022), pain reduction in postoperative laparotomy patients can be achieved through the administration of finger grip relaxation therapy once a day for three days, with a duration of 15 minutes each. Before receiving the therapy, most patients experienced postoperative pain of moderate severity; But after receiving therapy, their pain levels decreased to mild. This study shows that finger grip relaxation

interventions can effectively reduce the level of discomfort experienced by postoperative patients. Many previous studies have also revealed that finger grip therapy is an effective method to reduce the severity of postoperative pain (Larasati et al., 2022)

## **METHOD**

The method used in this study is descriptive analytical with a case study approach, which includes assessment, nursing diagnosis, planning, implementation, and evaluation of nursing. Data collection techniques are carried out through interviews, observations, physical examinations, documentation studies, and literature reviews. The assessment was carried out by collecting data and information from patients through anamnesis and observation. Nursing diagnosis refers to SDKI based on the analysis of data obtained, while nursing plans are prepared based on the SIKI-SLKI book (SIKI – Standar Intervensi Keperawatan Indonesia – <https://snars.web.id/sdki/> (Rahman et al., 2024). Nursing implementation and evaluation are documented with the SOAPIER model. The respondent in this study was one person, namely Mr. D, a 45-year-old man with a diagnosis of Cholelithiasis Post Op Choleistektomy. Nursing care is provided with non-pharmacological therapy in the form of finger hold relaxation techniques. This therapy is carried out for 3 days, with a duration of 15 minutes per session, starting from September 27 to 29, 2023.

## **RESULTS AND DISCUSSION**

### **A. Nursing assessment**

The first stage carried out in nursing care is a review. The assessment was carried out using observation and interviews with patients and their families. The patient on behalf of Mr. D with the age of 45 years was referred to Dr. Soekardjo General Hospital Tasikmalaya on September 26, 2023.

Previously, the patient had undergone a CT scan examination with the results of the abdomen, the results of cholecystitis et causa with a diameter of 0.28 cm, and stones in the choledox duct with a diameter of 0.47 cm were diagnosed with gallstones. So the doctor said that laparotomy surgery must be carried out on September 27, 2024, according to the previously scheduled procedure. The patient said he had never had a history of surgery before.

During the assessment on Wednesday, September 27, 2023, the patient complained of abdominal pain in the surgical scar. Pain increases when lying down and pain decreases when in a semi-fowler position. Pain is felt in the surgical scar, namely in the abdomen with a pain scale of 7 (0-10). The pain is felt continuously and feels like being cut. The pain is felt to be persistent and does not spread.

According to the patient's family assessment data, he often consumes fatty foods such as meatballs, chicken soup, and other fast food before being admitted to the hospital. Eating high-fat foods increases the chances of developing cholelithiasis. Pimpale et al. (2019) stated that cholesterol is a component of fat and bile can precipitate and eventually turn into stones if the cholesterol levels in it are higher than normal. Rapid weight loss combined with low chloride consumption disrupts the chemical composition of bile and can reduce gallbladder spasms. As a result, there are several causes and risk factors for gallstones. Cholelithiasis is a specific non-hemolytic disease that affects women over 40 who use hormonal contraceptives, are obese and eat fatty

foods (Adhata et al., 2022) It is a hemolytic disease.

The patient's main complaint is pain, which is a complex sensory experience. These events can vary in terms of their duration (temporary, intermittent, persistent), character (blunt, like burning, sharp), severity (mild, moderate, severe), and spread (shallow or deep, localized or extensive). Despite feelings, pain has an emotional and cognitive component that is characterized as suffering. Changes in autonomic output and avoidance reflex strength are associated with pain. Inorganic lumps known as gallstones can form in the colledox ducts or hepatic ducts in addition to the gallbladder. Dyspepsia and pain in the abdomen can occur as a result of these gallstones. Gallstones rarely affect people under the age of 25, so patients over 40 are at risk of developing them. Gallstones are estimated to affect 30% of the elderly, but most do not cause any symptoms. Genetics is another risk factor. Similar diseases may (Adriani et al., 2022).

#### B. Nursing Diagnosis

Based on the results of the anamnesis, the nursing diagnosis that can be established in accordance with the Indonesian Nursing Diagnostic Standards is Acute Pain of the Working Group Team of the SDKI DPP PPNI, (2017) (Wati & Ernawati, 2017)

The conclusion that can be drawn is that signs and indications in postoperative cholecystectomy patients often show intense pain associated with physiological damage due to surgery. This intense pain can appear as a result of a disease or surgical procedure, with varying severity (from mild to very severe) and lasting for a short period of time. This severe pain will usually subside on its own as the damaged tissue

heals, and in most cases, can go away without the need for medication once the patient's condition improves (Yuliana et al., 2022).

#### C. Nursing Intervention

Based on theory, the nursing plan is guided by the theory of SDKI, SLKI, SIKI and refers to journal literature that can be accepted logically according to the client's condition. The main intervention carried out in cases of cholelithiasis after cholecystectomy surgery is the application of finger grip relaxation techniques with pain problems.

The process of relaxation through the grip of the fingers is a very simple technique and easy for anyone to do. This method deals with the fingers of the hands and the flow of energy in the body. Grasping your fingers while taking a deep breath can help reduce physical stress and stress. This strategy can also warm the vital points in the meridians (energy channels) found in our fingers, thus providing reflex stimulation that can relieve body tension.

The stimulation received will send waves to the brain, which are then forwarded to the nerves in the affected organs, helping to smooth the flow of energy that had been blocked. The finger grip relaxation technique helps the body, mind, and soul to achieve a state of relaxation. In a relaxed state, the body will naturally trigger the release of endorphins, which function as natural analgesics, so the pain will be reduced (Larasati et al., 2022).

#### D. Nursing Implementation

The implementation of nursing is carried out by the nursing care plan that has



been prepared, which has been adjusted to the conditions of the managed client, namely identifying the location, characteristics, frequency, and quality of pain, identifying the scale of pain, identifying factors that aggravate and reduce pain, identifying knowledge and beliefs about pain, Providing non-pharmacological techniques (finger hold relaxation techniques) to reduce pain, explaining causes, periods, and triggers of pain, collaborating on intravenous administration of analgetic drugs (ketorolac 3x30mg), monitoring drug side effects. The implementation of non-pharmacology carried out on clients with acute pain is by performing the Finger Hold relaxation technique. The finger grip method is done 1-2 times a day, usually for 3 days. Based on supporting evidence, this finger grip relaxation technique has been proven to be effective in reducing the scale of pain in postoperative patients.

#### E. Nursing Evaluation

After that, the implementation of the Finger Hold relaxation technique was carried out for 3-5 minutes and the evaluation was carried out after the Finger Hold relaxation technique was carried out, the results reduced the pain scale even though it was still in the moderate pain range, namely from the pain scale of 7 to the pain scale of 5, then the patient's vital signs returned to normal, namely 125/75 mmHg.

Evaluation carried out on September 27 2023 at 21.00 Subjective: The patient said the pain had decreased. Objective: The patient still looks grimacing, the pain scale has decreased to 5 (0-10), the pulse has decreased to 95 x/minute, blood pressure has decreased to 125/75 mmHg, respiration 20 x/minute,

temperature 26.4 C, and consciousness. Mentis. Assessment: The pain problem has not been resolved. Plan: Continue intervention.

After that, the finger-hold relaxation technique was implemented for 3-5 minutes, given 2 x 24 hours for 3 days. The evaluation results showed that on the first day, there was a decrease in the pain scale, although it was still in the moderate pain range, namely from a pain scale of 7 to a pain scale of 5, then The patient's vital signs returned to normal with BP: 125/75 mmHg.

On the second day, September 28 2023 at 07.00 WIB, before being given drug therapy, the pain was identified, the patient said there was still a little pain but not like the first day, he didn't sleep soundly at night because of the pain, the pain was scale 4, the patient said he often carried out finger-hold relaxation actions. When the pain comes, after the finger-hold relaxation technique is carried out for 3-5 minutes, then an evaluation is carried out, there is a decrease in pain, namely from moderate pain to mild pain or from a pain scale of 4 to mild pain with a scale of 3.

On the third day, September 29, 2023, at 14.00 WIB, before the finger-hold relaxation technique was carried out, the patient looked calm, said the pain had decreased, and the pain scale was in the mild pain range or pain scale 3 after the finger-hold relaxation technique was carried out and the evaluation was carried out, there was a decrease in pain from pain scale 3 becomes pain scale 1. There are no complaints of difficulty sleeping and vital signs are within the normal range.

The pain after surgery on the first day will gradually decrease in the following days. The pain of the surgery began to be felt after two hours of surgery, due to the anesthesia effect that began to disappear. During the assessment, the days after surgery will appear from a moderate to severe scale. The experience of torture in any postoperative understanding details the high-intensity torture on the first day and diminishes in retrieval after days (Rosiska et al., 2021)

Based on this explanation, the authors conclude that the finger grip relaxation procedure can reduce the level of pain in patients who experience nursing problems related to intense pain due to physical damage due to the surgical procedure. These results are in line with research conducted by Tyas & Maulida that there is an impact of finger grip strategies on reducing the rate of torture in postoperative patients (Tyas, 2020).

Pain can be reduced in unexpected ways because it is influenced by a variety of factors, one of which is family support and close social relationships. During the postoperative care period, the presence of family and partners can provide a sense of calm and reduce anxiety. The finger grip method involves finger grip and breath control. Each of these grips carries a flow of energy that serves as a stimulus for relaxation. This stimulation affects the transmission of nerve signals, increasing the activity of larger and faster A-beta nerve fibers, thereby reducing the transmission of pain through the smaller C and A-delta nerve fibers. Thus, finger grip inhibits pain perception. If the pain information does not reach the brain, then the pain will not be felt. By directing breathing through the grip of the fingers, the

patient's pressure and anxiety can be controlled, thus helping to create a greater sense of comfort and reduce the intensity of pain.

Perawatan genggam jari akan memberikan stimulasi yang diteruskan melalui serat saraf aferen non-nosiseptor. Serat saraf non-nosiseptor ini menyebabkan "pintu gerbang" tertutup, sehingga menghambat dan mengurangi transmisi stimulus nyeri (Aswad, 2020).

## CONCLUSIONS

The evaluation obtained after the finger hold relaxation technique for 3 days and carried out 1-2 times a day there was a significant change in the condition by showing that there was progress that the pain felt by the client could decrease.

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