

## The Application Of Finger Grip Relaxation Therapy To Reduce Pain Level In Patient With Post-Operative Appendicitis; A Case Study

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### Abstract

One of the treatments for appendicitis is surgery. Surgery will certainly cause post-operative pain that needs to be handled appropriately. If it is not treated immediately, pain in post-operative patients will slow down patient recovery, results in long hospitalization, prone the patient to a high complication rate, and require a lot of costs. Therefore, proper handling of post-operative pain is needed. In addition to drugs, non-pharmacological techniques can be a supportive treatment that proven to be effective. A non-pharmacological technique that can reduce pain is finger grip relaxation therapy. This study aims to describe the nursing care in a case of patient with post-operative appendicitis given finger grip relaxation therapy to reduce pain. This is a descriptive case study of an adult postoperative appendicitis patient with major nursing problems, acute pain. Results showed that the patients suffering level 6 of pain (moderate pain). The patient was given intervention including analgesic and supported with hand-held finger grip therapy in three days. The intervention was given three times a day, with a duration of 30 minutes. After given the intervention, the patient reported a decrease in pain level, into level 1 (mild pain). It can be concluded that nurses can apply finger grip relaxation therapy to provide nursing intervention or nursing care for post-operative patient to accelerate pain relief.

**Keywords:** post-operative pain; appendicitis; finger grip relaxation therapy; pain level; non pharmacological

### Penerapan Terapi Relaksasi Genggam Jari untuk Mengurangi Nyeri pada Pasien Paska Operasi Apendisitis; Sebuah Studi Kasus

#### Abstrak

Salah satu pengobatan penyakit usus buntu adalah dengan operasi. Pembedahan tentunya akan menimbulkan nyeri pasca operasi sehingga perlu penanganan yang tepat. Jika tidak segera ditangani, nyeri pada pasien pasca operasi akan memperlambat kesembuhan pasien, mengakibatkan rawat inap yang lama, rentan menyebabkan pasien memiliki tingkat komplikasi yang tinggi, dan memerlukan biaya yang besar. Oleh karena itu, diperlukan penanganan nyeri pasca operasi yang tepat. Selain obat-obatan, teknik nonfarmakologis dapat menjadi pengobatan suportif yang terbukti efektif. Salah satu teknik non farmakologi yang dapat menurunkan nyeri adalah terapi relaksasi genggam jari. Penelitian ini bertujuan untuk mendeskripsikan asuhan keperawatan pada kasus pasien apendisitis pasca operasi yang diberikan terapi relaksasi genggam jari untuk mengurangi nyeri. Ini adalah studi kasus deskriptif pasien apendisitis dewasa pasca operasi dengan masalah keperawatan utama, nyeri akut. Hasil penelitian menunjukkan bahwa pasien menderita nyeri tingkat 6 (nyeri sedang). Pasien diberikan intervensi berupa analgesik dan didukung dengan terapi genggam jari selama tiga hari. Intervensi diberikan tiga kali sehari, dengan durasi 30 menit. Setelah diberikan intervensi, pasien melaporkan adanya penurunan tingkat nyeri, menjadi level 1 (nyeri ringan). Dapat disimpulkan bahwa perawat dapat menerapkan terapi relaksasi genggam jari untuk memberikan intervensi keperawatan atau asuhan keperawatan pada pasien pasca operasi untuk mempercepat pereda nyeri.

**Kata Kunci: nyeri pasca operasi; radang usus buntu; terapi relaksasi genggam jari; tingkat nyeri; non farmakologi**

## INTRODUCTION

Appendicitis is the main cause of acute inflammation of the right lower quadrant of the abdomen and the most common cause of emergency abdominal surgery. Appendicitis can occur at any age, most often between the ages of 10 to 30. This appendicitis can affect men and women equally, but more often affects men. Based on data from the World Health Organization (2017), there were about 1.1 million people suffering from appendicitis in the world, with mortality rate around 21,000 people. The mortality rate of appendicitis is around 12,000 people in men while women are around 10,000 people (WHO, 2020). Appendicitis is the second highest non-communicable disease in Indonesia in hospital admissions from 2019 to 2020. Based on data from the Ministry of Health of the Republic of Indonesia (2018), the number of appendicitis sufferers in Indonesia reached 591,819 people and increased in 2019 by 596,132 people with 3.36% recorded as having appendectomy, and in 2020 there was an increase in cases to 621,435 people with 3.53% recorded to have had appendectomy (Listrikawati, 2021).

Based on preliminary data collection at Kendari City Hospital the case of appendicitis continued to increase from the year of 2020 to 2022. In 2020, the incidence of appendicitis was 165 people consisting of 59 men (35.7%) and 106 women (64.7%). In 2021 the incidence of appendicitis was 122 people consisting of 46 men (37.7%) and 76 women (62.2%). While in 2022 the incidence of appendicitis reached it's peaked, 143 people consisting of 60 male (41.9%) and 83 female (58.0) suffer from appendicitis and required appendectomy (Kendari, 2022).

One of the treatments of appendicitis cases is invasive treatment through a surgical procedure commonly called appendectomy. Appendectomy is a surgical procedure through an incision to open a part of the body to remove the inflamed appendix. The average recovery time of post-operative patients is 72.45 minutes, so patients will experience severe pain in the first two hours after surgery due to reduced anesthetic effect (Wati & Ernawati, 2020). If it is not treated immediately, pain in post-operative patients will slow down patient recovery, results in long hospitalization, prone the patient to a high complication rate, and require a lot of costs. This is because the patient focusing all his attention on the pain (Berkanis et al.,2020).

The pain felt by almost 75% of all postoperative appendectomy patients is an individual subjective experience due to tissue damage. Different pain scale ranges in different patients, ranging from very severe pain, moderate pain to mild pain, this depends on one's experience of previous pain (Wati & Ernawati, 2020). Pain management in postoperative patients certainly requires the participation of nurses. Nurses carry out the nursing process starting from nursing assessment, nursing

diagnosis, planning, implementation and evaluation to manage the patient's pain (tim pokja S. D. PPNI, 2018; T. pokja PPNI, 2016; T. pokja S. D. PPNI, 2016; Purwoto et al., 2023).

There are two kinds of pain management, namely pharmacologically and non-pharmacologically (Jainurakhma et al., 2023). Pharmacological treatment is usually given with the use of analgesics to relieve very intense pain that lasts for hours and even days. Non-pharmacological therapy is used as a drug companion to shorten ongoing pain, that can be implemented by providing or assisting patients to do deep breath relaxation, music therapy, warm or cold compress therapy, muscle relaxation therapy and finger grip relaxation therapy. Finger grip relaxation therapy is one of the relaxation techniques that can provide a feeling of comfort, more relaxed, mentally and physically free from stress or tension, and results in increase tolerance to pain (Wati & Ernawati, 2020).

Based on the results of study conducted by Sulung & Dian (2017), the average pain of post-operative appendectomy patients before doing the finger grip relaxation technique is 4.80 and the average pain after doing the finger grip relaxation technique is 3.87. There is a difference in pain intensity before and after the finger grip relaxation technique, among patients with post appendectomy (Eldest & Dian, 2017). Rasyid *et al.* (2019) also examined the effectiveness of finger grips on pain changes in postoperative appendicitis patients and the study showed the increase in number of patients who experience mild pain (from 25% to 30.6%).

Finger-grip relaxation techniques are one way to manage emotions and develop emotional intelligence. Along the fingers of the human hands, there are channels or meridians of energy that are connected to various organs and emotions. The reflex points on the hand received (spontaneous) stimulation when grasping. These stimuli will send a kind of shock wave or electric current to the brain. The state of relaxation will naturally trigger the release of endorphins, which are natural analgesics from the body that results in pain relief (Astutik & Kurlinawati, 2017). This research aims to describe the nursing care in a case of patient with post-operative appendicitis given finger grip relaxation therapy to reduce pain.

## METHOD

This is a descriptive case study of an adult postoperative appendicitis patient with major nursing problems, acute pain due to appendectomy. The study was carried out in the Jasmine Room of Kendari City Hospital. The study subject was chosen using inclusion and exclusion criteria. The inclusion criteria include: willing to be the respondent; a patient of first day of postoperative appendectomy; cooperative and able to communicate well; patient with pain scale, range of 4-6; aged between 15 to 50 years. While the exclusion criteria were 1) patients who experience severe pain and 2) experience a complication. The data was collected using nursing assessment form for post-operative patients. The data including patient details, patient complaints, patient history, patient basic needs fulfillment, physical examination data including vital signs and pain scale and other relevant data.

A nursing care process was provided to the patient started from the assessment, the formulation of nursing diagnosis, the development of nursing intervention plan, the implementation and the evaluation. In the implementation process, subject was given fingers grip relaxation therapy. The therapy was lasted in about 30 minutes, given 3 times a day (at 04:00 a.m. with the accompanied of family, at 12:00 a.m. and at 08:00 p.m. with the accompanied of the researcher and family). The therapy was provided an hour before the schedule of 30 mg Ketorolac injection and carried out for three consecutive days. The evaluation of the pain scale was conducted everyday after the provision of the therapy.

## RESULTS

The results showed that the patient was an adult female called Mrs. S. She has been suffering from appendicitis for the last three months. The doctor suggested her to undergo an appendectomy because her appendix was severely inflamed. The assessment on Mrs. S was started on the first day of her post surgery. Mrs. S condition was stable and she could communicate well to the nurse. From the data collected, through assessment, the nurse (researcher) formulated the main problem of Mrs. S, which was acute pain related to physical injury agents (surgical procedures). The following data of pain were obtained:

- P (Provoke): the patient said that the pain cause by the surgical wound. There was a closed surgical wound measuring around 6 cm, there were no signs of bleeding, the area around the wound still looked reddish
- Q (quality): the patient said that the pain felt like a sharp pain
- R (region): the patient said that the pain felt in the lower right abdomen
- S (scale): the patient said the pain scale 6,
- T (time): The patient said pain is felt continuously all the time.

The surgeon instructed to administer injections of 30 mg Ketorolac every 8 hours for pain treatment. However, Mrs. S, still complain about pain whenever the effect of the analgesic reduced. In addition to the injection of analgesic, the nurse assisted patient to do finger grip relaxation through demonstration of steps of the therapy and a leaflet. Nurse also involved the patient's family to support the patient doing the therapy. The steps of finger grip relaxation therapy demonstrated by the nurse including:

- 1) Positioning the patient: the patient lying straight on the bed
- 2) Asking the patient to adjust his breath and relax all muscles
- 3) Asking the patient to grip the thumb using other fingers for 3 minutes by breathing regularly and then switch to the next finger with the same time span.

The first finger grip relaxation therapy was implemented 8 hours post-surgery, an hour before the schedule of the next analgesic injection. The therapy was provided three times a day with the accompanied of the family and the nurse. The observation on the pain scale was conducted prior to

and after every session of the therapy. The nurse documented the results of pain scale observation in an observation sheet. The results of the of observation on the pain scale was presented in the table 1.

**Table 1. Pain Scale in Every Session of The Therapy in Three Consecutive Days**

Day	Observation	Morning session		Noon Session		Evening Session	
		Before therapy	After therapy	Before therapy	After therapy	Before therapy	After therapy
1st day	Pain scale	6	5	5	4	3	2
2nd day	Pain scale	3	2	3	2	4	2
3rd day	Pain scale	4	2	3	1	Patient was discharged	

According to data in table 1, it was found that Mrs. S experienced a decrease in pain levels after finger grip relaxation therapy for 3 consecutive days. At the beginning of the study, Mrs. S experienced moderate pain on a scale of 6 and after given finger grip therapy three times a day, Mrs. S reported a decrease in pain scale into 1 or mild pain.

## DISCUSSION

In this study, a non-pharmacological therapy was given to a patient who just underwent an appendectomy and experienced acute pain (pain scale 6/moderate to severe pain). The pharmacological therapy is often not enough to help patient manage or reduce the pain. Especially for post-operative patient, the pain might last for more than three days, maybe weeks, or even months. However, the surgeon or the physician could not always prescribe analgesic for the patient. Besides the adverse events that might be resulted by the administration of analgesic, we surely do not want the patient to become dependent on drugs. In this point, we need to provide an alternative treatment such as a non-pharmacological therapy. In this study, the post appendectomy patient was given finger grip relaxation therapy as a form of non-pharmacological therapy in addition to analgesic.

Appendicectomy is a surgical procedure to remove the appendix to prevent appendix perforation and treatment of perforation that can cause pain. In this study the patient complained about 6 scale of pain (moderate to severe pain) after the surgery, despite the anesthesia. This is inline with the study that said, almost every surgery causes pain an even getting worse with the time (Sulung, et al, 2017). The most common pain is incision pain, the pain occurs due to injury, withdrawal, manipulation of tissues and organs. Pain can also occur due to stimulation of nerve fiber endings by surgery or tissue ischemia due to impaired blood supply, muscle spasm or edema (Sulung et al, 2017). Trauma to the skin fibers will result in sharp, localized pain (Sulung et al, 2017).

In this study, the patient experienced a decrease in pain levels after finger grip relaxation therapy for 3 consecutive days. At the beginning of the study, Mrs. S experienced moderate pain on a scale of 6 and after being given finger grip therapy for 3 days with a frequency of 3 times a day, she reported a decrease in pain scale, the pain scale has reached scale 1 (mild pain). The finger grip relaxation therapy can help reduce the pain because it will warm the exit points and entry of meridian

energy (Muzaki et al., 2021). It is also said that relaxation is a mental and physical state free from tension and stress, this can alter cognitive perception and increase the motivation of the patient (Muzaki et al., 2021). This is also inline with the statement that said, grasping the finger while adjusting the breath can reduce physical and emotional tension, because the grip of the finger will warm the points in and out of the meridian energy on the human finger (Astutik & Kurlinawati, 2017). Astutik & Kurlinawati (2017) also said that reflex points on the hands are spontaneously receive stimulation when carrying, these stimuli will send electrical current to the brain, and are received and processed in the damaged organs, and cause the release of blockages in energy pathway. This relaxation mechanism is described in gatecontrol theory which states that cutaneous stimulation activates greater and faster transmission of A-beta sensory nerve fibers (Muzaki et al., 2021). Therefore, this kind of therapy can be effective in helping patient to manage the pain.

## CONCLUSION

It can be concluded that, moderate to severe pain can be experienced by post appendectomy patient or other patients' post-surgical procedure. Nurses should provide a nursing care that include pain management in supporting and in addition to pharmacological treatment. This is because, the pain management through pharmacological way, sometimes is not enough to help reduce pain and have a risk of adverse event. Nurses can implement non-pharmacological treatment such as finger grip relaxation therapy to help patient in pain. This intervention is part of nursing independent role and has been proven to be effective and safe.

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