

# Implementation of Nursing Care for Mrs. R in Craniotomy Tumor Removal with Brain Tumor Diagnosis

<sup>1</sup>Yusdianto Pobela, <sup>2</sup>Rizqy Iftitah Alam, <sup>3</sup>Tutik Agustini

<sup>1,2</sup>Program Studi Pendidikan Ners, Fakultas Kesehatan Masyarakat, Universitas Muslim Indonesia  
Correspondensi: [YusdiantoPobela@gmail.com](mailto:YusdiantoPobela@gmail.com)

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**Abstract:** Brain tumors are uncontrolled abnormal cells that continue to grow in the brain unconsciously, disrupting the brain's working system. Brain tumors have been divided into two large groups, namely primary and secondary or metastatic brain tumors. Both secondary brain tumors are tumors that originate from other parts of the body and then spread to the head (brain). This study aims to determine the application of nursing care for Mrs. R in the action of craniotomy removal of tumors with a diagnosis of brain tumors in the central surgical installation room of RSUD. Labuang Baji Makassar. This case study uses an observation method regarding the surgical procedure and is descriptive of the case study and nursing process approach. In this case study, the results were obtained after an assessment was carried out until nursing intervention was given for 1x5 hours. Then, the brain tumor was resolved by performing a craniotomy removal of the tumor. Based on the results of the discussion of the results of the case study and the nursing care provided, it can be concluded that the nursing diagnosis taken in the case of a brain tumor (meningioma) with a craniotomy removal of the tumor in the central surgical installation room of RSUD. Labuang Baji in the pre-phase is chronic pain and anxiety; in the intraoperative phase is the risk of bleeding; and in the postoperative phase is the risk of infection so that the nursing care actions given to the four diagnoses are in accordance with the interventions provided in the 3S book (SDKI, SLKI, SIKI).  
**Keywords :** Brain tumor, meningioma, tumor removal craniotomy, perioperative care

## BACKGROUND

A brain tumor is an abnormal condition in which tumor cells multiply and spread in the brain area, inhibiting the normal function of human nerve cells (1). Brain tumors are distinguished into two based on their distribution center. The first is a primary tumor, a tumor that originates from the brain tissue itself. The second is a secondary tumor, a tumor that arises from another part of the body and then spreads to the head (brain) (2). A brain tumor is one of the most dangerous diseases that can interfere with brain function. The cause of this disease is still unknown, although many investigations have been carried out, but there are several indicators of the cause, namely, genetics, neoplasms, viruses and radiation exposure (3). Brain tumors can be detected by performing a Magnetic Resonance Imaging (MRI) Scan. Currently, radiologists diagnose brain tumors manually by reading the results of the patient's brain MRI image. However, this method can reduce the accuracy of the diagnosis due to the human eye's limitations, which is prone to error (4).

Globally, statistics show that brain tumors are increasing and are ranked fifth as a significant cause of death. 5 The growth of tumor cells has been influenced by the individual's health condition and immune system. If the immune system is weak and health is unstable, it can stimulate tumor growth (6 ). According to the International Agency for Research on Cancer (IARC), the health condition of brain tumor sufferers varies depending on the size, type, location, and severity of the tumor (7). The total number of

reported cases of brain tumors varies, depending on the data source and definition of brain tumor used. Each year, around 120,000 people suffer from brain tumors, and 90,000 die from the disease. In America and Europe, the incidence of brain tumors has increased from 17.6/100,000 to 22.0/100,000 population, where around 18,500 new cases of primary brain tumors are diagnosed each year in America, and these cases have a relatively high mortality rate of 3% for a 5-year survival rate (8).

In Indonesia, there are 300 cases of brain tumors diagnosed with brain tumors each year (9). Not only adults but brain tumors also attack children at a relatively young age. Many people ignore the symptoms caused by brain tumors (10). The method commonly used by doctors to classify the type of brain tumor suffered by patients is by biopsy and direct observation. Biopsy takes a long time, around 10-15 days for laboratory tests, while direct doctor observation is at risk of error (11). Therefore, deep learning using the Convolutional Neural Network (CNN) method is one way that can help a doctor classify and diagnose the type of brain tumor experienced by a patient and produce a low error rate (12).

According to information from the Health Office of the Ministry of Health in 2020, of all primary tumors found in the central nervous system, the order of frequency of growth of abnormal tissue formation that becomes a tumor (neoplasm) in the skull space is glioma 41%, meningioma 17%, and pituitary 13%, the rest consists of various primary brain tumors. Most of the most common cases found are glioma and meningioma (13). Every year, out of three tumors, one brain tumor is diagnosed as a glioma tumor. One of the most malignant gliomas is glioblastoma. Meningioma tumors are a type of benign tumor that can develop around the lining of the brain. In contrast, pituitary tumors often affect the pituitary gland, which regulates hormone production in the body. In a study reviewed in England, 4 cases of glioblastoma were found out of 100,000 population each year. At 63, the incidence of glioblastoma increases sharply, but it can also attack various ages (14).

Cases of benign tumors often occur in women than in men. The incidence based on the location of origin (tumor origin) is the meninges area (33%), while the brain parenchyma (29.8%), the seller part (21.8%), and the spinal and cranial nerves (15.4%) (15). In the case of meningioma, the number of women is very high compared to men. Because women are more than three times more at risk of experiencing meningioma than men. In the pregnancy phase and the luteal phase during menstruation, it is a factor that accelerates the growth and development of meningioma (16). The hypothesis of the phenomenon that occurs through hormonal pathways (estrogen and progesterone) so that it can affect sex hormones in women on the growth and development of meningioma (17). In the case, the author took and explained data on brain tumor patients in 2023 at RSUD. Labuang Baji Makassar as many as 15 patients. In the treatment and surgery of brain tumors, the author obtained data that the most cases of meningioma (benign tumors) occurred in 9 patients (18). If this disease is not treated immediately, it can slowly threaten the client's health, even cause complications and lead to death. The dysfunction of the client's brain is caused by a brain tumor that has been treated for a long time because the nervous system in the brain has been disturbed by tumor cells, both malignant and non-malignant (19). This case became interesting when the author observed when surgery was performed in the operating room; it took a very long time to remove the tumor that grew in the brain. At the time of surgery, the author had followed the surgical process with a case of meningioma (benign tumor) until completion (20).

For that, I am personally interested in taking this case to be studied and used as a final scientific paper for nurses and to deepen the application of nursing care for Mrs. R in the craniotomy removal of tumors with a diagnosis of brain tumors in the central surgical installation room of RSUD. Labuang Baji Makassar provides comprehensive nursing care for both patients and their families (21).

## METHODS

This case study uses the observation method regarding the surgical procedure and is descriptive of the case study and the nursing process approach. This observation method is used to observe and describe clearly in words and use the concept of the nursing approach in the surgical process from before to after surgery in the Central Surgical Installation room of RSUD. Labuang Baji Makassar.

## RESULT AND DISCUSSION

Based on Table 1. There is a pain scale for brain tumor patients (meningioma) who underwent tumor removal craniotomy.

Table 1.  
Mrs. R's pain scale

Operation Phase	Pain scale 1-10	Pain Quality
Pre operatif	5	Medium
Intra operatif	0	No Pain
Pasca operatif	0	No Pain

Berdasarkan Tabel 2 terdapat hasil observasi TTV untuk pasien tumor otak (*meningioma*) yang dilakukan tindakan kraniotomi removal tumor.

Table 2. Vital Sign Ny. R

Operation Phase	Vital sign				
	Blood Pressure	Pulse	Temperature	Breathing	SP02
Pre operatif	150/90 mmHg	120x/i	35,6,°C	20x/i	99 %
Intra operatif	130/96 Mmhg	90x/i	35,6,°C	20x/i	99 %
Pasca operatif	140/93 mmHg	100x/i	36,1°C	20x/i	99 %

Based on Table 3, there are observation results of Glasgow Coma Scale examination of brain tumor patients (meningioma) who underwent tumor removal craniotomy.

Tabel 3.  
Glasgow coma scale Ny. R

Operation Phase	Glasgow Coma Scale				
	Eye Score	Verbal Score	Motoric Score	Total	Grade awareness
Pre operatif	4	5	6	15	Composmentis
Intra operatif	1	1	1	3	coma
Pasca operatif	1	1	1	3	coma

Pada penjelasan kasus ini, penulis juga perlu menguraikan tentang adanya keserasian teori dan hasil dari intervensi yang telah diberikan kepada klien dengan diagnosis medis "Tumor otak dilakukan tindakan

craniotomi removal tumor." Kasus ini dilakukan pada tanggal 19 Maret 2024 dengan intervensi atau perencanaan keperawatan yang penulis angkat dan berikan kepada klien dengan problem keperawatan yaitu nyeri kronis, ansietas, risiko pendarahan dan risiko infeksi.

## **DISCUSSION**

### ***Overview of chronic pain management***

The first nursing problem is chronic pain; after the assessment was conducted, subjective data was obtained that the patient complained of pain in the right parietal head area; the patient also said that he felt uncomfortable with the condition he was experiencing, the pain felt like being stabbed, the pain scale 5 (Moderate) was felt both during activity and rest, the patient said he was depressed (depressed). While the objective data was obtained, the patient appeared to be grimacing, restless, protective of the pain experienced, alert and focused on himself. The implementation will be carried out by the author, namely conducting complete and precise pain management to determine the characteristics of pain, controlling the environment that can affect pain to increase the patient's sense of comfort, teaching non-pharmacological techniques such as prayer and dhikr to provide calm to patients and reduce the intensity of pain.

The results of the study on March 19, 2024, on a brain tumor patient who underwent a tumor removal craniotomy, the patient complained of pain on a scale of 5 (Moderate), with vital signs of blood (BP) 150/90 mmHg, pulse (N) 120x/i, breathing 20x/i, and body temperature 35.6°C. After implementing pain management by teaching non-pharmacological spiritual therapy techniques, "prayer and dhikr," the level of pain felt by the patient decreased from a scale of 5 to a pain scale of 4 (moderate) (22). This view refers to the support of the guidelines by (Muzaenah & Hidayati, 2021), which always applies the spiritual "Prayer and Dhikr" because it is effective in reducing the pain score felt by postoperative patients. The author believes this therapy can also be used in pre- and intra-operative patients because it can provide a positive impact in the form of calm, comfort and always remembering Allah SWT. In addition, non-pharmacological methods such as prayer and dhikr are inexpensive, simple, convenient, and safe to use anytime and anywhere. Therefore, especially for Muslim patients, prayer and dhikr can be an additional option for non-pharmacological pain management before, during, and after surgery(23).

Previous researchers have proved this by reading prayers and dhikr or listening to them has been proven to reduce the intensity of pre-operative pain. This diagnosis of chronic pain refers to the SDKI book. According to the author, the method of prayer and dhikr is very relevant to be applied to patients with brain tumors "meningioma" to reduce pain levels and even reduce anxiety or fear of patients so that patients feel calm, comfortable, and safe in undergoing the operation process (24).

### ***Overview of anxiety application***

The second nursing problem is anxiety; after the assessment was carried out, the patient said he was anxious because he would undergo surgery. The data emerged that the patient felt confused, worried about the consequences of the conditions faced, had difficulty concentrating, complained of dizziness, looked restless, looked tense, had difficulty sleeping, increased blood pressure frequency, increased pulse rate, the patient's face looked pale. The implementation applied by the author is a broad, complete, and precise reduction of anxiety to determine the level of anxiety changes according to conditions, monitor signs of anxiety (verbal and non-verbal), create a therapeutic atmosphere to foster trust, accompany patients to reduce anxiety, provide factual information about the diagnosis, treatment, and prognosis by providing education on the patient's condition and health (25). The results of the assessment on March 19, 2024 in a brain tumor patient who underwent a tumor removal craniotomy, the patient said he was anxious

about the conditions he faced when he was going to have surgery, the patient complained of confusion, had difficulty concentrating, looked restless, looked tense, with vital signs of blood (BP) 150/90 mmHg, pulse (N) 120x/minute, breathing 20x/minute, and body temperature 35.6°C. After implementing the provision of factual information regarding the diagnosis, education, and prognosis, the method of which is the same as providing health education to patients, the patient said that his anxiety slowly decreased, and he felt calm (26).

This method references the researcher's view (Irawan et al., 2022), who applied health education to preoperative patients to reduce excessive patient anxiety. Therefore, the author believes this method is relevant and effective for use in preoperative patients facing surgery. The author has applied this method so that patients feel calm and comfortable, and their anxiety slowly decreases (27).

According to the author, this anxiety diagnosis refers to the SDKI book published by PPNI in 2018. It is very relevant to be applied to patients with brain tumors, "meningioma," to increase patient confidence in undergoing the surgical process. The author has studied this in patients both subjectively and objectively (28).

### ***Overview of the application of bleeding risk***

The third nursing problem is the risk of bleeding; after the assessment was carried out, objective data was obtained, the patient's condition was sleeping, there was a wound on the head that was open for surgery, and there was bleeding during surgery of 250 cc. The implementation carried out by the author was preventing bleeding by monitoring signs and symptoms of severe bleeding, maintaining bed rest during bleeding, limiting invasive actions, explaining the signs and symptoms of bleeding to the patient's family, and preparing blood products to be given to the patient if needed.<sup>29</sup> The results of the assessment on March 19, 2024: a craniotomy was performed on a brain tumor patient to remove the tumor; the patient was seen sleeping, there was an open wound on the head that was temporarily undergoing surgery, there was 250 cc of surgical bleeding and vital signs of blood pressure (BP) 130/96 mmHg, pulse (N) 90x/minute, breathing 20x/minute, and body temperature 35.6°C, SaO<sub>2</sub> 99%. After implementing comprehensive bleeding *prevention*, the risk of bleeding is still well controlled (30).

According to the author, if the operation process is ongoing, the first thing to consider is the patient's condition and whether bleeding occurs. In this case, the author took a diagnosis of bleeding risk referring to the SDKI book. According to the author, it is very relevant to be applied to patients with brain tumors, "meningioma," to prevent blood deficiency or anemia (31).

### ***Overview of the application of infection risk***

The fourth nursing problem is the risk of infection; after a post-operative assessment, objective data was obtained that the patient was still asleep (sedated), and there was a surgical suture wound on the parietal head. The implementation carried out by the author was to monitor signs and symptoms of local/ischemic infection, wash hands before and after contact with patients and their environment, and maintain aseptic techniques in high-risk patients. This implementation was carried out to minimize the occurrence of infection in patients, nurses, and families (32). The results of the assessment on March 19, 2024, a brain tumor patient underwent a tumor removal craniotomy; the patient was still asleep (sedated), there was a surgical suture wound on the parietal head, there was a surgical suture wound on the parietal head and vital signs were blood pressure (BP) 140/93 mmHg, pulse (N) 100x/minute, breathing 20x/minute, and body temperature 36.1°C, SaO<sub>2</sub> 99%. After implementing comprehensive infection

prevention implementation, the risk of infection is still well controlled but is still monitored continuously (33).

According to the author, post-brain tumor surgery (meningioma) and will be transferred to the ICU, the main thing that needs to be considered is the patient's condition so that it remains sterile and free from the risk of infection. After the operation was completed, the author observed, took, and implemented a diagnosis of infection risk. The diagnosis of infection risk, taken from the SDKI book, is not just a standard procedure but is particularly relevant to post-brain tumor surgery patients, validating the author's knowledge and the audience's understanding (34).



Figure 1 & 2: Craniotomy tumor removal procedure

## CONCLUSION

From the results of observations and discussions that have been presented above, it can be concluded that the implementation of nursing care for brain tumor clients who will undergo surgery is very crucial to avoid further infection and complications. Given that brain tumors (meningioma) grow in the brain stem, immediate treatment efforts are needed. In the case study and nursing care provided in cases of brain tumors (meningioma) with craniotomy removal of tumors in the central surgical installation room of RSUD. Labuang Baji, namely the diagnosis of chronic pain, anxiety, risk of bleeding, and risk of infection. So that the nursing care actions given to the four diagnoses are in line with the interventions given and are included in the 3S book (SDKI, SLKI & SIKI).

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