



## Nursing Care for Mrs. L with Respiratory System Disorders: Pleural Effusion in St. Laura Room Santa Elisabeth Hospital Medan

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**Abstract.** Pleural effusion is the accumulation of abnormal fluid in the pleural space that can be caused by various conditions, such as infections (tuberculosis, pneumonia), malignancies, heart failure, or other systemic diseases. Clinical manifestations are generally shortness of breath, pleuritic chest pain, and cough. Diagnosis enforcement is carried out through clinical examination, radiology (thoracic photo, ultrasound), and pleural fluid analysis. Management of pleural effusion depends on the cause and volume of fluid. In cases of massive pleural effusion or those that cause significant respiratory distress, the installation of a pigtail catheter is one of the options for fluid drainage. Pigtail catheter is an effective minimally invasive method of gradual removal of pleural fluid, with a relatively low risk of complications. The method in this final scientific paper uses a case study method with a nursing care approach for Mrs. L with respiratory system disorders: pleural effusion in the inpatient room of St. Laura, Santa Elisabeth Hospital Medan. Results: The signs and symptoms that arise in the case of pleural effusion were all obtained in accordance with the theory and data found in the field, in addition to the determination of nursing diagnosis was also adjusted to the SDKI obtained. The determination of the intervention given to the client with pleural effusion, in the form of nebulizer therapy, semi-fowler positioning, and the installation of water seal drainage (PIGTAIL Installation).

**Keywords:** Nursing Care; Pleural Effusion; Pigtail Catheter; Respiratory Disorders; Water Seal Drainage.

### 1. INTRODUCTION

Pleural effusion is a condition in which there is an accumulation of excess fluid in the pleural cavity, pleural effusion means the accumulation of a large amount of free fluid in the cavum. The accumulation of fluid in the pulmonary cavity results in pulmonary pressure so that the development or expansion of the lungs will decrease and result in ineffective breathing patterns. The ineffectiveness of the breathing pattern is the inability of the respiratory system process: insoiration or expiration that does not provide adequate ventilation (Nanda, 2017).

According to the World Healt Organization (2018), pleural effusion is a symptom of a disease that can threaten the life of the sufferer. Pleural effusion occurs in 30% of patients with pulmonary TB and is the largest cause of morbidity due to extrapulmonary TB. Patients with pleural effusion are mostly found in the age group of 44-49 years and above, and it occurs more in men (54.7%) than in women (45.3%). The high incidence of pleural effusion is caused by Pulmonary TB and Lung Tumors. The prevalence of pleural effusion disease in Indonesia reaches 2.7% (Rozak et al, 2022). Symptoms that often arise in pleural effusion are shortness of breath, pain can arise due to a large effusion in the form of pleuritic chest pain or dull pain depending on the amount of fluid accumulation. Extensive pleural effusion will cause shortness of breath which has an impact on meeting oxygen needs, so that oxygen needs in the body are not met. This can cause cell metabolism in the body to be unbalanced, therefore oxygen therapy is needed (Anggarsari et al 2018).

The role of nurses is very necessary in the form of promotive, preventive, curative and rehabilitative efforts so that they can prevent the occurrence of a continuous complication. The role of the nurse in the form of promotive is to provide information about diseases with pleural effusion. Preventive by reducing cigarettes and drinks containing alcohol (Arif, 2020). The form of curative is the act of inserting an intra-pleural catheter, catheters that can be used include nelaton catheters or chest tubes which are widely used in the installation of water sealed drainage (WSD). In the next development, another type of catheter was used with a technique of installation under the subcutaneous tissue, so that the catheter is fixed well and minimizes the risk of infection, namely the Indwelling Pleural Catheter (IPC) (Tamsil et al 2019). Rehabilitative by re-checking the patient's condition in the hospital and at home (Arif, 2008). Based on the above background, the author will continue nursing care for patients with pleural effusion in the Laura Room of Santa Elisabeth Hospital Medan.

## **2. LITERATURE REVIEWS**

In the Pulmonary Textbook, pleural effusion is the accumulation of pathological fluid in the pleural space. The pleural space is located between the parietalis pleura on the side of the thoracic wall and the visceralis pleura that covers the pulmonary organs, under normal conditions there are several milliliters of fluid that functions as a lubricant between the two surfaces. The pleural pressure is lower when compared to atmospheric pressure, to ensure the lungs can expand. Under normal conditions, fluid moves in the pleural cavity according to pressure differences and penetrates the mesothelium (Marhana et al., 2022).

According to the Medical Surgical Nursing Textbook, pleural effusion is a collection of fluid in the pleural cavity of the lungs. Fluid is usually in the pleural cavity and serves as a lubricant so that the pleural membranes can shift against each other as we breathe. Fluid is constantly added and reabsorbed by the capillaries and lymph vessels in the pleura. If this recycling process is disrupted, pleural effusion can occur (Dr. Sukriyadi et al., 2025).

Pleural effusion is characterized by a buildup of excess fluid between the lining of the chest wall and the lining of the lungs, known as the pleural cavity. Usually, there is a small amount of fluid in the pleural cavity that acts as a lubricant to facilitate breathing. The severity of this condition depends on the cause and symptoms. Common causes of pleural effusion include infections,

### **3. METHODS**

This study uses a descriptive case study design with a medical-surgical nursing care approach. The case study was chosen to obtain an in-depth overview of the application of the nursing process in patients with respiratory system disorders in the form of pleural effusion. The subject in this study was one patient (Mrs. L) who was treated in the St. Laura Room of Santa Elisabeth Hospital Medan in the period of March 5-7, 2025. The selection of subjects was carried out purposively based on the suitability of medical diagnosis and nursing care needs.

Data collection was carried out through a direct assessment of patients which included interviews, observations, physical examinations, as well as review of medical records and supporting examination results. The data obtained consisted of subjective and objective data relevant to the patient's clinical condition. The implementation of nursing care is carried out based on five stages of the nursing process, namely review, determination of nursing diagnosis, planning, implementation, and evaluation. The determination of nursing diagnosis refers to the Indonesian Nursing Diagnosis Standards (SDKI), interventions are prepared based on the Indonesian Nursing Intervention Standards (SIKI), and outputs are evaluated using the Indonesian Nursing Output Standards (SLKI).

Data analysis was carried out in a qualitative descriptive manner by comparing clinical findings in patients with relevant theories, guidelines, and research results. The results of the analysis are presented in the form of a systematic description to describe the patient's response to the nursing intervention given.

This research has also been ethically feasible from the health research commission of STIKes Santa Elisabeth Medan with letter number No: 110 /KEPK-SE/PE-DT/IV/2024.

### **4. RESULT AND DISCUSSIONS**

#### **Nursing Assessment Results**

In the study, the author obtained data through direct interviews with patients and families, in addition to that, the author also obtained data from direct observations, medical records and supporting examinations at Santa Elisabeth Hospital Medan. Based on what the author did Nn L, 30 years old, it appears that patients with general conditions are moderately ill, weak patients. The complaints experienced by patients are, shortness of breath, cough and if you are on your back, tightness will increase, if you lean to the right, the patient says it is more comfortable. Paradoxical breathing pattern, orthopnea, 5 liters/minute nasal oxygen installed. On examination of vital signs obtained, TD: 130/80mmHg, HR: 80x/i, T: 36.8 0C, and RR:

26x/i. The patient had a history of ISPA in February 2025. The authors assume that the data found in the case shows that there is no difference between the theories because most of the signs and symptoms experienced by patients with pleural effusion problems are present in the theoretical review.

This is in line with the clinical manifestations in pleural effusion patients are cough, shortness of breath, pleuritic pain, a feeling of heaviness in the chest, weight loss, deprivation of the trachea away from the painful place can occur if significant fluid accumulation (Nurdiyantoro, 2020). From the results of the study, the author draws the conclusion that almost all of the symptoms mentioned by the researchers above were felt by Mrs. L. patient with pleural effusion in the St. Laura room of Santa Elisabeth Hospital Medan.

### **Nursing Diagnosis**

From the results of data analysis in the case of Mrs. L, there are three nursing diagnoses, diagnoses in accordance with the theoretical and one non-theoretical diagnosis. The diagnosis found was: IPC 1. Ineffective breathing patterns are associated with obstruction of breathing efforts 2. Acute pain associated with post-installation physical injury agents 3. Anxiety is related to lack of exposure to information The author assumes that the problems obtained are not all contained in the theory there are problems obtained outside the theory, namely anxiety is related to lack of information is characterized by the patient being worried about his disease, appearing tense, always looking for information from gadgets and based on the results of the assessment carried out on patients with the signs and symptoms shown, then the anxiety is raised in relation to lack of exposure information.

This is in line with the research of Titik Conscience et al. (2019), which states that nursing problems can arise in pleural effusion patients. That is, anxiety is caused by anxiety about experiencing the same condition as other people who have the same disease, and fear of failure in installing pigtails. This is in line with the research of fencing et al (2018), which states that problems that often arise in pleural effusion patients are. Ineffective breathing patterns, related to a decrease in secondary lung expansion to fluid accumulation in the pleural cavity, so that the lungs do not expand optimally, and cause the amount of oxygen delivered into the body to decrease, so that the patient cannot breathe normally and experiences shortness of breath. Therefore, in pleural effusion patients with this case include: shortness of breath, chest feels heavy, if sleeping on your back tightness increases, it is necessary to carry out drainage (pigtail installation) and be given oxygen therapy and fowler semil position to normalize oxygen saturation in the body Nursing diagnosis in the review of theories that are not raised on: Airway clearance is not effective in relation to retained secretions, This diagnosis was not raised

because the intervention on the breathing pattern could overcome the problem of ineffective airway clearance. Gas exchange disorders are associated with changes in the capillary alveolus membrane. This was not raised because there was no data from the patient to support the diagnosis. Hyperthermia is related to the disease process, this diagnosis is not raised because the patient does not show any signs and symptoms of fever. Activity intolerance is related to weakness, this diagnosis is not raised because fatigue is an effect of respiratory distress caused by pleural effusion.

### **Nursing Intervention**

Nursing intervention involves a design strategy to prevent and correct problems that have been identified in nursing diagnoses, namely ineffective breathing patterns related to obstruction of breathing efforts characterized by shortness of breath, chest heaviness, chest pain, if sleeping on your back tightness increases. 1. In this diagnosis, the author makes interventions that are in accordance with the patient's condition and supported by theories, namely: monitoring breathing patterns (frequency, depth and effort of breathing,), additional breath sound monitors (e.g., gurgling, wheezing, dry ronchi). Position a semi fowler or fowler, give warm water to drink, do chest physiotherapy, give oxygen, teach effective coughing techniques, collaborate on bronchodilator administration, expectorate, mucolytic and collaborative pigtail installation action. The author assumes that actions in overcoming pleural effusion, namely drainage (pigtail installation), oxygen therapy, and semi-fowler position in this case have been carried out so that the problem of breathing patterns can be overcome. This is in line with the research of Fencing Sari et al (2018), in overcoming the problem of breathing patterns, there is pleural effusion, namely, drainage (pigtail installation) oxygen therapy and semi-fowler position 2.

Diagnosis II: Acute pain is associated with a physical injury agent. The authors designed interventions that are appropriate to the patient's condition and supported by theories, namely, identifying pain locations, characteristics, identifying non-verbal pain responses, providing non-pharmacological techniques of deep breathing, facilitating rest and sleep, explaining the causes and triggers of pain, collaboration of analgesic administration. 3. Diagnosis III: Anxiety is related to lack of exposure to information. The authors designed interventions that are appropriate to the patient's condition supported by the theory, namely: Identification of the level of anxiety changes, monitoring of family signs to keep the patient in check. anxiety (verbal and non-verbal), listen attentively, explain the procedure including the sensations that may be experienced, inform factually, treatment and prognosis, practice relaxation techniques, encourage the family to remain in the patient's care.

### **Nursing Implementation**

Nursing implementation is carried out based on the interventions that have been made to achieve the expected results. Nursing actions are carried out during the day and in collaboration with patients, patients' families, doctors, office shift friends and room nurses, so that the nursing actions carried out can run well. For the diagnosis of ineffective breathing patterns collaborating in the installation of drainage (pigtail) and performing wound care every day no obstacles were experienced, because the patient and family worked well together, and in the second and third diagnoses also had no problems in performing according to the specified intervention.

### **Nursing Evaluation**

This stage is the final stage of the implementation of nursing care which includes determining whether the expected results are achieved or not. The nursing evaluation obtained for 3 days on Mrs. L, where the diagnosis of ineffective breathing pattern and the diagnosis of acute pain related to physical harm agents were still partially resolved due to the limited time given to the author so that further monitoring of Mrs. L's case and the diagnosis of Ancietas on the third day had been resolved because in the intervention the author included the pastoral care team.

**Table 1.** Evaluation of Nursing Mrs. L.

Date	Evaluation (SOAP)	Name
05/03/25 21.00	1. DK: An ineffective breathing pattern is related to obstruction of breathing effort. S : The patient said he was still tight O : The patient said he still had a dry cough	P R I S K A
	1. The patient appears to be breathing using auxiliary muscles 2. Pernafasan 3. The patient appears to be using a 5 L/min nasal cannula 4. Additional sounds are heard { Wheezing} 5. RR 28x/min 6. Spo2: 96%	S A M O S I R
	A : The problem of breathing pattern has not been resolved P : Continue the intervention	P R I S K A
05/03/25 21.00	<b>Airway management (I.01011)</b> 2. DK: Anxiety related to lack of exposure to information S : The patient said he was worried about his condition O : Face looks tense Patients are seen looking for information through gadgets Looks restless Akral feels cold A : Anxiety problems have not been solved P : Continue to intervene <b>Reduksi Ansietas (I.09314)</b> Present Pastoral Care	S A M O S I R
06/03/25 15.00	1. S : The patient said that he was still tight and sometimes heard a dry cough Chest feels heavy Patients say that if the sleeping position is tight, O : Dyspnoea Orthopnoea RR : 26x/min Installed oxygen 5 L/min Spo2 : 98% A : Breathing pattern problems have not been resolved P : Intervention continues <b>Airway management (I.01011)</b>	

## 5. CONCLUSION AND SUGGESTION

After performing nursing care on patients with plura effusion using the nursing process approach, it can be found in the case study: 30-year-old Mrs. L patient with complaints, appears to be a patient with a moderate general state of illness, weak patient. The complaints experienced by patients are, shortness of breath, cough and if you are on your back, tightness will increase, if you lean to the right, the patient says it is more comfortable. Paradoxical breathing pattern, orthopnea, 5liter/min nasal oxygen. On examination, the signs of the diagnosis obtained are: vital obtained, TD: 130/80mmHg, HR: 80x/i, T: 36.8 0C, and RR: 26x/i. Ineffective breathing patterns are related to obstruction of breathing effort, Anxiety is

related to lack of exposure to information, Acute pain is related to physical harm agents {pigteil placement on the chest on the right} In the nursing action plan is prepared based on the nursing diagnosis that has been made In carrying out nursing actions in patients with plura fusion is carried out based on Indonesian nursing intervention standards At the evaluation stage, the author found that the final result From the three diagnoses, tightness has begun to decrease, Anxiety has been resolved and pain has not been resolved, so monitoring of the installation of pigtail chest hoses and the need to carry out chest hose care every day.

For the nursing process to play an active role in conducting assessments by conducting a physical examination of the thorax and determining a diagnosis based on the data obtained according to the patient's condition.

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