

Nursing case report of a child with tuberculosis and impaired physical mobility in the west aster ward of dr. Sardjito General Hospital, Yogyakarta

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Abstract

Tuberculosis (TB) is an infectious disease caused by the bacterium *Mycobacterium tuberculosis*. It primarily affects the lungs but can also spread to other organs such as the kidneys, spine, and brain. Patients with pulmonary TB often face several challenges, including a decreased ability to perform daily activities, sleep disturbances, pain or discomfort, reduced energy levels, and impaired mobility. Physical mobility impairments in TB patients are caused by various factors that affect their ability to carry out daily tasks, such as muscle weakness, fatigue, pain, discomfort, weight loss, poor nutritional status, and complications involving the musculoskeletal system. This study aims to provide nursing care for a pediatric tuberculosis patient with impaired physical mobility in the West Aster Ward of RSUP (Central General Hospital) dr. Sardjito, Yogyakarta. Case. A 6-year-old child presented with the main complaint of abdominal pain since Saturday. The patient also exhibited white patches on the face resembling tinea versicolor, and was unable to walk. The child has a history of surgery on the right leg muscles and is currently unable to walk. Since the onset of illness, the patient has experienced significant weight loss. Vital signs upon examination showed a body temperature of 36.6°C, a pulse rate of 103 beats per minute, oxygen saturation of 100%, and a respiratory rate of 21 breaths per minute. The identified nursing problem was impaired physical mobility. The intervention focuses on supporting mobility, with the goal of improving the patient's physical mobility outcomes. Assessment results indicated that the nursing diagnosis of impaired physical mobility had not yet been resolved due to several contributing factors. However, the effectiveness of the therapy suggests that with consistent implementation over approximately 2–4 weeks, improvement can be expected. Ongoing evaluation should focus on the patient's physical mobility, ability to perform activities of daily living (ADLs), and the effectiveness of the prescribed therapy.

Keywords: impaired physical mobility; nursing care; tuberculosis

1. Introduction

Tuberculosis (TB) is an infectious disease caused by the bacterium *Mycobacterium tuberculosis*. This disease primarily attacks the lungs, but can also spread to other organs such as the kidneys, spine, and brain. The main symptoms of TB include a cough with phlegm that lasts for more than two weeks, which may be accompanied by blood-tinged phlegm, coughing up blood, shortness of breath, feeling weak, decreased appetite, and weight loss. In addition, TB sufferers may also experience malaise, night sweats without physical activity, and a prolonged low-grade fever. TB spreads through airborne droplets containing the bacteria, which are released when an infected person coughs or sneezes. Someone who inhales these droplets is at risk of contracting and developing TB (Febriwanti et al., 2024).

Tuberculosis is often called "the great imitator" because it resembles many other diseases that also exhibit common symptoms such as weakness and fever. In some patients, the symptoms are nonspecific, so they are often ignored or even asymptomatic. If left untreated, TB can lead to various complications, including malnutrition, pus accumulation in the pleural cavity (empyema), and death. effusion pleura, liver inflammation (hepatitis), hearing loss, and problems with the digestive tract due to side effects of treatment (Making et al., 2023).

Patients with pulmonary TB face various challenges, such as decreased ability to perform daily activities, sleep disturbances, pain or discomfort, and reduced energy and mobility. Furthermore, further complications that can occur include airway obstruction, acute respiratory failure syndrome (ARDS), post-TB obstructive syndrome, severe lung parenchymal damage, pulmonary fibrosis, cor pulmonale, amyloidosis, and lung cancer. In advanced stages, sufferers can also experience severe hemoptysis or bleeding from the lower airways. This condition is categorized as advanced because it carries the risk of death from shock, spontaneous collapse due to lung tissue damage, and the spread of infection to other organs such as the brain, bones, joints, kidneys, and so on (Nisak et al., 2021).

Complications that can occur with pulmonary TB include pain in the spine, with back pain and stiffness being common effects. Furthermore, TB can also cause joint damage, with tuberculous arthritis commonly affecting the hips and knees. The infection can also spread to the lining of the brain (meningitis), which can cause persistent or recurring headaches that last for several weeks. TB can affect the function of the liver and kidneys, which play a role in filtering waste and toxic substances from the blood, thus causing disorders in these organs (Sari et al., 2022).

Pulmonary tuberculosis (TB) can have a devastating impact on sufferers, particularly on their physical health. One of the main problems often experienced by TB patients is a significant decline in physical condition. Patients with TB face various difficulties, such as decreased ability to carry out daily activities, sleep disturbances, pain or discomfort, and reduced energy and mobility (Kausar & Nursasi, 2020).

Children are at greater risk of exposure to tuberculosis, especially in areas with high disease incidence. Population density also plays a role in increasing the risk of TB in children, as crowded environments allow for more frequent interactions, which can accelerate the spread of bacteria. A child's age also influences the risk of TB exposure, as older children tend to interact with more adults in their daily lives. In addition to age, housing conditions also influence the risk of TB transmission. The type of building materials used in a house, the physical structure of the dwelling, and sleeping habits are factors that can increase TB exposure (Pratama, 2021).

Impaired physical mobility in tuberculosis (TB) patients can be caused by various factors that affect their ability to carry out daily activities, including muscle weakness and fatigue, pain and discomfort, weight loss and nutritional status, and complications in the musculoskeletal system (Ummah, 2020).

TB treatment consists of anti-tuberculosis drug therapy (OTT) for at least 6 months in two phases: intensive (2 months) using Rifampicin, Isoniazid, Pyrazinamide, and Ethambutol, and continuation (4 months) with Rifampicin and Isoniazid. Drug-resistant TB requires a special regimen with a longer duration (9–24 months). Side effects such as nausea, liver problems, or changes in urine color should be monitored. Compliance with medication is crucial to prevent resistance. Prevention includes the BCG vaccine, a healthy lifestyle, and early detection of latent TB in at-risk groups (Supriadi et al., 2024).

Nursing care plays a crucial role in patient survival by providing appropriate and correct nursing care aimed at improving recovery rates and preventing complications. Based on the above background, the author sought to learn more about nursing care for patients with tuberculosis in the Aster Barat pediatric ward.

2. Method

The method used is a case report by providing nursing care to patients from the assessment stage to the evaluation stage. The subject of this report is a patient with a medical diagnosis of Suspect Tuberculosis and marasmic malnutrition. The population in nursing care is one person. This nursing care was carried out on January 22, 2025, in the West Aster Ward of Dr. Sardjito General Hospital, Yogyakarta.

3. Results and Discussion

3.1. Results

3.1.1. Case Overview

A 6-year-old child came to the hospital on January 21, 2025 at 15.00, with the main complaint of abdominal pain since Saturday, there are white spots on the face like tinea versicolor, unable to walk, 3 weeks ago the patient was treated at another hospital complaining of abdominal pain for 3 weeks, the stomach feels bloated and distended, hard when pressed, currently the complaint has subsided. The patient has a history of surgery on his right leg muscles, currently the patient cannot walk, since the illness the patient has experienced significant weight loss. The results of the examination of vital signs obtained a temperature of 36.6 degrees Celsius, pulse 103 x / minute, oxygen saturation 100% and respiratory rate 21 x / minute, anthropometric measurements obtained a height of 120 cm, weight 12.9 kg and a body mass index of 9 (severe malnutrition).

Table 1. Radiological Examination

Types of diagnostic examinations	Inspection date	Analysis & Interpretation
Thorax PA Examination	01/22/2025	<ul style="list-style-type: none"> - Both pulmonary apices appear clear. - Normal <i>bronchovascular</i> pattern is visible. - <i>Inhomogeneous</i> opacity in the form of an <i>infiltrate</i> is seen in the <i>perihilar projection of the right lung</i>. - There is visible condensation of <i>the right hilar lymph nodes</i>. - No <i>bilateral pleural space widening</i> was seen. - <i>phragmatic hemidia</i> appear smooth and not flat. - Cor, normal configuration - Visualized intact skeletal system <p>Impression:</p> <ul style="list-style-type: none"> - <i>Perihilar infiltrate</i> with <i>right pulmonary lymphadenopathy</i> suspected active pulmonary TB - Normal cast configuration

During treatment, the patient received IV ranitidine, sucralfate tablets, IV paracetamol, and anti-TB drugs. Based on the description above, the nursing problem that emerged was impaired physical mobility.

3.1.2. Nursing Diagnosis, Intervention, Implementation, and Evaluation

3.1.2.1. Physical Mobility Impairment

The patient was diagnosed with a nursing diagnosis of Physical Mobility Disorder (D.0054) according to the Indonesian Nursing Diagnosis Standards (SDKI). The nursing care plan that will be carried out according to the main outcome of the diagnosis is Physical Mobility (L.05042) according to the Indonesian Nursing Outcome Standards (SLKI) and the main intervention according to the Indonesian Nursing Intervention Standards (SIKI) carried out on the patient is Mobilization Support (I.05173), which includes identifying the presence of pain or physical complaints, monitoring heart rate and blood pressure before starting mobilization, facilitating movement, encouraging early mobilization and encouraging simple mobilization.

3.1.2.2. Intervention

Interventions carried out in the nursing diagnosis of impaired physical mobility are by monitoring vital signs, identifying the ability to move, identifying factors causing the disorder, providing movement exercises (passive/active ROM), early/simple mobilization, educating patients and families about the importance of mobilization to prevent joint stiffness, collaboration in providing pharmacological therapy, providing education on providing nutrition to prevent decreased muscle mass, and involving the family in providing interventions.

3.1.2.3. Implementation

The implementation carried out on January 22, 2025 at 14.00 was to identify the cause of physical mobility disorders, check vital signs, explain the purpose and benefits of mobilization, provide education on joint range of motion, assess the pain scale before and after the procedure, and provide the client with the opportunity to ask questions.

The implementation carried out on January 23, 2025 at 07.30 was to identify physical mobility disorders, evaluate the interventions that had been carried out, carry out the agreed meeting contract, check vital signs before and after the intervention, assess the pain scale before and after the intervention, and perform passive ROM range of motion on the patient.

The implementation carried out on January 24, 2025 at 14.00 was to identify physical mobility disorders, evaluate the interventions that had been carried out, carry out the agreed meeting contract, check vital signs before and after the intervention, assess the pain scale before and after the intervention,

perform passive ROM range of motion on patients and provide education regarding decreased muscle mass due to nutritional deficits

3.1.2.4. Evaluation

The evaluation results on January 22, 2025 at 17.00 were known S (Subject) : The patient's mother said she had not received the information/education provided, the patient said it still hurt when her legs were straightened, the patient's mother said it was difficult to teach the patient to mobilize; O (Object) : The patient still seemed reluctant to be mobilized, the patient still had a little difficulty straightening her legs, pain scale before the procedure: 6, pain scale after the procedure: 7, muscle strength 2, vital signs obtained were temperature 36.0C, pulse 103 x/minute, respiration rate 22 x/minute, A (Assessment) : Physical Mobility Disorders had not been resolved. Based on the evaluation results, it showed that P (Planning) intervention continued with a time contract with the patient for a meeting tomorrow, January 23, 2025 at 07.30 and agreed on a further contract to carry out further implementation of passive ROM range of motion.

The evaluation results on January 23, 2025 at 12.00 were known as S (Subject) : the patient said that his right leg still hurt when moved; O (Object) : the patient appeared to be able to straighten his left leg independently, the patient winced when touched on his right leg, pain scale before the procedure was 6, pain scale after the procedure was 6, muscle strength was 2, vital signs before mobilization were pulse 129 x/minute, saturation 100%, respiration rate 24 x/minute and vital signs after mobilization were pulse 134 x/minute, saturation 100%, respiration rate 23 x/minute. A (Assessment) : Physical Mobility Disorders have not been resolved. Based on the evaluation results showing P (Planning) intervention, a time contract with the patient was continued for a meeting tomorrow, January 24, 2025, agreeing on a further contract to carry out further implementation of ROM range of motion and massage on the leg muscles and a further contract for education regarding nutritional deficits that cause a decrease in muscle mass.

The evaluation results on January 24, 2025 at 19.00 were known S (Subject) : the patient said that his right leg still hurt when moved, the patient's mother said that she had not received information about nutritional deficit education causing decreased muscle mass; O (Object) : the patient appeared to be able to move both legs independently, the patient winced when touched on his right leg, pain scale before the procedure: 6, pain scale after the procedure: 5, muscle strength: 3, vital signs before mobilization pulse 110 x / minute, saturation 100%, respiration rate 23 x / minute, vital signs after mobilization pulse 127 x / minute, saturation 100%, respiration rate 25 x / minute. A (Assessment) : Physical Mobility Disorders have not been resolved. Based on the evaluation results showing P (Planning) the intervention was continued to agree on a further contract to carry out further implementation to carry out ROM range of motion and massage on the leg muscles and encourage the patient to do joint range of motion independently.

3.2. Discussion

Based on the evaluation conducted on January 24, 2025, at 7:00 PM, the patient's diagnosis of Physical Mobility Impairment remains incomplete. Despite some positive developments, there are still challenges that require further nursing intervention.

The patient reported that he still felt pain in his right leg when moving it, although the intensity of the pain was slightly reduced compared to before. The pain scale, which was initially 6, decreased to 5 after the procedure. This indicates that his body is improving with the mobilization exercises. However, the patient's mother stated that she had not received any education regarding the relationship between nutritional deficits and muscle loss, which should be a key consideration in the patient's recovery process.

Objectively, the patient has shown improvement in mobility, as he is now able to move both legs independently. However, when his right leg is touched, he still grimaces in pain, indicating that the wound on his right leg has not fully healed. Muscle strength has increased from a scale of 2 to a scale of 3, indicating that the range of motion exercises performed are beginning to produce positive results in improving the patient's mobility.

Vital signs before mobilization showed a pulse of 110 beats per minute, oxygen saturation of 100%, and a respiratory rate of 23 breaths per minute, all within normal limits. However, after the mobilization

exercises, the pulse rate increased to 127 beats per minute and the respiratory rate to 25 breaths per minute. This increase is a normal response to physical activity, indicating that the patient's body is beginning to adapt to the exercise.

Based on this evaluation, the patient's physical mobility impairment remains incompletely resolved. Key issues that still need to be addressed include ongoing pain, suboptimal family education, and possible nutritional deficits that could delay muscle recovery. Therefore, more comprehensive nursing interventions are planned for the next meeting.

The intervention plan includes continuing regular range-of-motion (ROM) exercises to improve joint flexibility and muscle strength. In addition, leg massage therapy will be provided to improve circulation, reduce muscle tension, and help relieve pain. Patients are also encouraged to perform ROM exercises independently, allowing them to be more active in their physical rehabilitation. Family education will also be strengthened, particularly in understanding the role of nutrition in muscle recovery, enabling families to provide better support in the patient's care process. The evaluation revealed improvements in the patient's mobility, but further support is needed, including improved pain management, adequate nutritional support, and increased patient motivation for mobilization exercises. With appropriate strategies and support from healthcare professionals and families, it is hoped that the patient can achieve a better recovery in the future.

Patients experience impaired physical mobility due to tuberculosis, several factors that can influence this include muscle weakness and fatigue, nutritional status or weight loss and can be due to TB treatment itself (Kausar & Nursasi, 2020). Research conducted by Citra (2020) shows that inadequate nutritional intake and poor nutritional status contribute significantly to the side effects of anti-TB drugs, which in turn can affect the patient's physical activity (Citra, et al, 2020).

Patients with tuberculosis can experience impaired physical mobility, this can occur due to very significant weight loss, as explained by Setiadi, R (2019) that weight loss in TB patients is the result of a complex interaction between hypermetabolism due to inflammation, decreased nutritional intake, hormonal disorders, and musculoskeletal and respiratory complications. All of these factors contribute to impaired physical mobility, which can worsen the patient's quality of life if not properly managed. Nutritional interventions, physical therapy, and appropriate TB treatment are very important to reduce these negative impacts (Setiadi, et al, 2019).

Impaired physical mobility can be addressed by implementing joint strengthening exercises. This joint strengthening exercise is considered a relatively effective form of rehabilitation. Common signs of impaired physical mobility include difficulty moving the extremities, decreased joint strength, pain during movement, reluctance to move, and anxiety (Nafi'ah et al., 2022).

This is in line with the Indonesian Child Health Survey (IDHS) (2017) which states that the nursing diagnosis of Physical Mobility Disorders (D.0054) can be caused by neuromuscular, musculoskeletal, cardiopulmonary, and psychological disorders. Children with tuberculosis (TB) who experience impaired physical mobility require appropriate nursing interventions to improve their muscle strength and functional abilities. One effective intervention is performing joint range of motion and early mobilization. Research by Kusuma and Triana (2023) shows that implementing early mobilization education in children with impaired physical mobility can significantly increase muscle strength. In the case study, after being given mobilization education and training, the patient's muscle strength increased from a scale of 3 to a scale of 5 (Kusuma & Triana, 2023).

Range of Motion (ROM) exercises are a frequently used intervention to improve physical mobility in patients with movement disorders. The effectiveness of these exercises can vary depending on the individual's condition and the consistency of their implementation. According to research by Sari (2022), passive ROM exercises performed regularly for 2-4 weeks have been shown to improve joint flexibility and reduce the risk of contractures in patients with mobility limitations (Sari et al., 2022).

Implementation for physical mobility disorders involves early mobilization and joint range of motion (ROM) to help patients move as quickly as possible after an illness or medical procedure to prevent complications from immobilization. Early mobilization is crucial for improving circulation and preventing muscle atrophy. Furthermore, passive ROM is crucial for preventing complications from immobilization, such as joint stiffness, contractures, and muscle atrophy (Nurkhamim, 2021).

Other implementations, such as nutrition education, are also crucial for maintaining the nutritional status of TB patients. This is to prevent weight loss that leads to muscle weakness. TB patients are prone

to weight loss and malnutrition due to increased metabolic demands, decreased appetite, and medication side effects. Therefore, implementing nutritional improvement in TB patients must be structured and sustainable, combining nutritional assessment, increased food intake, management of drug side effects, supplementation, and patient and family education (WHO, 2021).

4. Conclusion

In tuberculosis patients, there are important data that must be obtained, namely patient assessment, from establishing the diagnosis, intervention, implementation to evaluation, as well as supporting examinations that must be performed. The nursing diagnosis that emerged in the patient was impaired physical mobility related to weakness and decreased muscle mass. Implementation provided included early mobilization exercises, joint range of motion, and nutritional education to prevent decreased muscle mass in patients with tuberculosis. The assessment results showed that the nursing diagnosis of impaired physical mobility had not been resolved due to various factors, such as the effectiveness of therapy administration, which showed that the therapy was effective if carried out routinely for approximately 2-4 weeks. Evaluations that must be considered include the patient's physical mobility, fulfillment of ADLs, and the therapy provided.

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