



Case Study on the Application of Aloe Vera Compress Technique to Reduce Body Temperature in Children with Hyperthermia in Rajadesa

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ABSTRACT

Introduction Hyperthermia is a common condition in children characterized by an increase in body temperature above normal and can cause serious complications if not treated properly. Aloe Vera compress as a non-pharmacological intervention is chosen because of its antimicrobial properties and calming effects.

Objective: This study aims to evaluate the effectiveness of the Aloe Vera compress technique in reducing body temperature in children with hyperthermia.

Method: This study used a descriptive case study approach to one school-age child who experienced hyperthermia. Data were obtained through interviews, observations, and physical examinations. Interventions in the form of Aloevera compresses were carried out for two days, and the patient's body temperature was monitored for three days.

Result: The patient's initial body temperature was recorded at 38.6°C. After the first day of intervention, the temperature decreased to 38.2°C, then to 37.9°C on the second day, and reached a normal temperature of 37.2°C on the third day. This indicates a gradual and significant decrease in body temperature.

Conclusion: The application of Aloevera compresses has been proven effective as a non-pharmacological intervention in lowering the body temperature of children with hyperthermia. This intervention provides a safe, comfortable, and easy-to-do therapeutic effect in the home environment.

Keywords: Hyperthermia, Children, Aloe Vera Compress, Nursing Intervention, Body Temperature

Introduction

Hyperthermia is a common nursing problem in children, especially infants and toddlers. This condition is characterized by an increase in body temperature above normal limits (>37.5°C) caused by disturbances in the body's temperature-regulating mechanisms, infection, or other inflammatory processes. If not treated appropriately, hyperthermia can lead to discomfort, seizures, dehydration, and even brain cell damage (Kusyani et al., 2022).

Hyperthermia, or fever, is a common reason parents rush their children to the doctor. Fever is not a disease, but rather a symptom of an illness, indicating the body's response to fighting an infection or illness, which can be caused by a virus or bacteria. As the body attempts to fight an infection, it produces heat, which is felt on the skin. Therefore, hyperthermia is the body's natural process of fighting infection. Generally, hyperthermia is not dangerous, unless the body temperature exceeds 41.1°C (104.7°F) (Aprian et al., 2024).

The main causes of hyperthermia include non-communicable diseases such as viral infections, bacterial infections, rickettsia (typhus), chlamydia, parasites, immune system disorders, vaccinations, tissue damage, drug use, neoplasms, bioactive substances, metabolic disorders, genetic factors, and endocrine disorders. An increase in body temperature can be accompanied by symptoms such as headache, cold sweats, weakness, muscle pain, ear and eye pain, loss of appetite, palpitations, skin redness, dehydration, runny nose, sore throat, cough, vomiting, and diarrhea. Symptoms of hyperthermia can be identified through a body temperature check that shows a higher than normal number. A condition can be categorized as hyperthermia if the results of a rectal body temperature check exceed 38°C or if the body temperature measured through the armpit is more than 37°C (Aini et al., 2022).

Based on this, the author feels the need to raise the application of the Aloe Vera compress technique in nursing care for children experiencing hyperthermia as an effort to provide holistic, effective nursing services based on a natural approach (Masitah, 2023).

According to Juniastuti Mindya (2005), Aloe Vera has long been known as a plant with antibacterial activity, a practice that has been scientifically proven. Aloe Vera exhibits antibacterial properties against Gram-positive bacteria. The antibacterial substances contained in Aloe Vera have been shown to control the growth of pathogenic bacteria, such as *Staphylococcus aureus* and *Streptococcus mutans*. Aloe Vera gel has also been shown to cure skin infections, such as phlebitis, more quickly than medication (Crisdian & Permatasari, 2021).

Aloe vera's potential as an antimicrobial plant is due to its active compounds, including 12 types of anthraquinones, which function as effective antibacterials and antifungals. Furthermore, aloe vera also contains various other compounds, such as saponins, quinones, lupeol, urea nitrogen, tannins, aminoglycosides, phenols, sulfur, cinnamic acid, salicylic acid, essential oils, and flavonoids, all of which can function as antimicrobials (Wijaya & Masfufatun, 2022).

This hadith was narrated by Abu Daud in his Sunan book with the words:

مِنْ حَدِيثِ أُمِّ سَلَمَةَ قَالَتْ: دَخَلَ عَلَيَّ رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ حِينَ تُوفِّيَ أَبُو سَلَمَةَ، وَقَدْ جَعَلْتُ عَلَيَّ صَبْرًا، فَقَالَ: مَاذَا يَا أُمَّ سَلَمَةَ؟ فَقُلْتُ: إِنَّمَا هُوَ صَبْرٌ يَا رَسُولَ اللَّهِ، لَيْسَ فِيهِ طَيِّبٌ، قَالَ: إِنَّهُ يَشُبُّ الْوَجْهَ، فَلَمْ تَجْعَلِيهِ إِلَّا بِاللَّيْلِ، وَنَهَى عَنْهُ بِالنَّهَارِ

Meaning: from the hadith of Umm Salamah which said: "The Messenger of Allah SAW came to see me when (my husband) Abu Salamah died. At that time I used Aloe Vera (Sabr/Sabir/Sabir), then the king asked: "What did you smear on your face, O Umm Salamah?"

fresh color for the face), so don't use it except at night" and the king forbade it to be worn during the day." This hadith was rated Dhaif by al Albani.

The World Health Organization (WHO) estimates that deaths due to hyperthermia worldwide reach between 16 and 33 million, with approximately 500,000 to 600,000 cases annually. In America, in 2012, cases of hyperthermia averaged 0.8% to 1.2% of 1,000 infants annually, and approximately 1.5% experienced seizures each month of all incidents. The Indonesian Demographic Health Survey showed that 31% of toddlers experienced hyperthermia, with a rate of 37% in children aged 6-23 months, and 74% of them were taken to health facilities (Rihi et al., 2022).

According to research (Ministry of Health of the Republic of Indonesia, 2018), in Indonesia, approximately 31% of children under 5 years of age, or toddlers, experience hyperthermia, with a higher rate of 37% in children aged 6-23 months, who are more susceptible to hyperthermia. Furthermore, approximately 74% of these children are taken to health facilities for treatment (Santoso et al., 2022).

Objective

Hyperthermia is a common condition in children characterized by an increase in body temperature above normal and can lead to serious complications if not treated appropriately. Aloe vera compresses are chosen as a non-pharmacological intervention due to their antimicrobial and soothing properties.

Method

Design and setting

This research used a descriptive case study approach for a school-age child experiencing hyperthermia. Data were obtained through interviews, observation, and physical examination. Interventions, such as aloe vera compresses, were administered for two days, and the patient's body temperature was monitored for three days.

Population and sampling.

Population and sampling

Participants are individuals who play a role in the research process, contributing by providing data to researchers as research material. According to Depoy & Gitlin, participants play a crucial role in gathering the information necessary to achieve research objectives (Azhari, 2023). The sampling technique used was convenience sampling (a non-probability technique), with subjects selected based on convenience or the researcher's preference. The research subject was a school-age child experiencing hyperthermia.

The sample inclusion criteria for this study were as follows:

- a) School-age child
- b) Stable condition (*compos mentis*)
- c) Child able to communicate verbally
- d) Permission granted by parents

Instrument and measurement

The instruments used in this study included interviews, observations, and physical examinations. Interviews were conducted directly with the patient's parent to collect subjective data regarding the child's condition, including chief complaints, current and past medical history, as well as any family history of illness. Observations were carried out during the intervention process to monitor the child's response to the Aloe Vera compress therapy and to record changes in body temperature over time.

Physical examinations focused on measuring vital signs, including body temperature, blood pressure, pulse rate, respiratory rate, and oxygen saturation. Body temperature measurements were taken daily for three consecutive days using a digital thermometer. The results showed a body temperature of 38.6°C on the first day, 38.2°C on the second day, and a normal temperature of 37.2°C on the third day. The measuring instruments used in this study were standard medical tools, including a digital thermometer, blood pressure monitor, and pulse oximeter to ensure accurate and reliable data collection.

Data collection and analysis

Data collection in this study was carried out through interviews, direct observation, and physical examinations. The interview was conducted with the patient's mother to obtain subjective information regarding the child's complaints, such as the presence of fever. Observation was used to monitor the child's physical condition and response to the Aloe Vera compress intervention. Physical examination was performed to assess vital signs, including blood pressure (100/60 mmHg), pulse (100 bpm), respiratory rate (24 breaths/min), temperature (38.6°C), and oxygen saturation (98%). The child's skin was warm to the touch, and signs of hyperthermia were confirmed.

The data were analyzed descriptively by monitoring the changes in the child's body temperature over a three-day period. The Aloe Vera compress was applied on the first and second day, and temperature readings were recorded each day. The temperature decreased progressively from 38.6°C on day one, to 38.2°C on day two, 37.9°C on day three, and finally reached normal at 37.2°C. This consistent temperature reduction indicated the effectiveness of Aloe Vera compress as a non-pharmacological intervention for hyperthermia in children.

Result

This assessment was conducted on June 7, 2025. The author obtained data through interviews, physical examinations, and observations. The client, An. R, is a 9-year-old boy living in Rajadesa, Ciamis Regency. He is currently in 5th grade.

Objectives and Outcome Criteria (SLKI)	Intervention (SIKI)
Thermoregulation improved (L.14134) After 3x24-hour nursing interventions, thermoregulation improved, with the following outcome criteria: 1. Body temperature improved	Hyperthermia Management (I.15506) Observation <ul style="list-style-type: none"> ● Identify the cause of hyperthermia (e.g., dehydration). ● Monitor body temperature ● Monitor vital signs ● Monitor complications due to hyperthermia Therapeutic <ul style="list-style-type: none"> ● Provide a cool environment ● Loosen or remove clothing ● Wet and fan the body surface ● Provide oral fluids ● Apply external cooling (Aloe vera compress therapy) Education <ul style="list-style-type: none"> ● Advise bed rest Collaboration <ul style="list-style-type: none"> ● Medication ● Paracetamol syrup ● Ibuprofen syrup

Nursing Diagnosis	Nursing Implementation		
	7 june 2025	8 june 2025	9 june 2025
Hyperthermia (D.0142) related to disease process (infection)	1. Conduct a physical assessment and examination. 2. Observe vital signs. Results: blood pressure 100/60 mmHg, pulse 100 beats/minute, respiration 24 breaths/minute, temperature 38.6°C.	1. Take a temperature measurement. Result: 38.3°C. 2. Provide non-pharmacological Aloe Vera therapy techniques.	1. Conduct a reassessment 2. Measure body temperature. Result: 37.2°C

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3. Provide non-pharmacological Aloe Vera therapy techniques.
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Nursing diagnosis	Nursing Evaluation		
	7 may 2025	8 may 2025	9 may 2025
Hyperthermia (D.0142) related to disease process (infection)	S: The client's mother stated that her child is experiencing hyperthermia.	S: The client's mother stated that her child is experiencing hyperthermia.	S: The client's mother stated that her child no longer has hyperthermia.
	O: Temperature: 38.6°C	O: Temperature: 38.3°C	O: Temperature: 37.2°C
	A: Hyperthermia has not been resolved.	A: Hyperthermia has not been resolved.	A: Hyperthermia resolved.
	P: Continue intervention.	P: Continue intervention.	P: Stop the intervention.
	I: Provide non-pharmacological techniques such as Aloe Vera compresses.	I: Provide non-pharmacological techniques such as Aloe Vera compresses.	
	E: Temperature after applying the Aloe Vera compress is 38.2°C.	E: Temperature after applying the Aloe Vera compress is 37.9°C.	
	R: Continue intervention.	R: Continue intervention.	

Discussion

In the study, information was obtained that the child's mother reported that her child's body temperature was high. The measurement results showed a body temperature exceeding normal, namely 38.6°C. From the data obtained, the author concluded that the child was experiencing hyperthermia. Hyperthermia or heat is one of the common reasons that make parents immediately take their children for treatment. Actually, fever is not a disease, but rather a symptom of a disease which is the body's reaction to fight infection or disease, which can be caused by viral or bacterial infections. When the body fights an incoming disease or

infection, it will produce a certain amount of heat that is felt on the skin. Therefore, hyperthermia is a natural process of the body in fighting infection. Hyperthermia is generally not dangerous, unless the temperature reaches more than 41.1°C. (Al Syiffani et al., 2023). The main causes of hyperthermia include non-communicable diseases such as viral infections, bacterial infections, rickettsia (typhus), chlamydia, parasites, immune system disorders, vaccinations, tissue damage, drug use, neoplasms, bioactive substances, metabolic disorders, genetic factors, and endocrine disorders. Increased body temperature can be accompanied by symptoms such as headache, cold sweats, weakness, muscle pain, ear and eye pain, loss of appetite, palpitations, redness of the skin, dehydration, runny nose, sore throat, cough, vomiting, and diarrhea. Symptoms of hyperthermia can be identified through a body temperature check that shows a higher than normal number. Hyperthermia is defined if the results of the body temperature check in the rectal area are more than 38°C or if the results of the body temperature check through the armpit are more than 37°C (Astuti & Utami, 2023).

Restate the Key Findings

This study found that the application of Aloe Vera compresses effectively reduced body temperature in a school-aged child experiencing hyperthermia. The patient's temperature decreased from 38.6°C to 37.2°C over three days of monitoring, indicating a steady and clinically significant improvement without pharmacological intervention..

Interpret the Results

The consistent decline in body temperature suggests that Aloe Vera compresses possess therapeutic benefits as a cooling agent. Its antimicrobial and soothing properties likely contributed to regulating the patient's thermoregulation and reducing systemic inflammatory responses. The technique is simple, safe, and applicable in home settings.

Compare with Previous Studies

These findings support previous research by Crisdian & Permatasari (2021) and Wijaya & Masfufatun (2022), who highlighted the antibacterial and anti-inflammatory properties of Aloe Vera. Similar studies using non-pharmacological methods, such as tepid sponge therapy, also showed effectiveness in reducing fever (Aprian et al., 2024; Astuti & Utami, 2023), thus aligning with the current results.

Highlight the Implications

This study highlights Aloe Vera compress as a viable alternative for managing fever in children, especially in resource-limited or home care settings. It promotes a holistic, natural, and non-invasive approach to nursing care, which can be adopted by both healthcare providers and parents.

Discuss the Limitations

The study was limited by its single-subject case design, which restricts the generalizability of the findings. Additionally, external factors such as ambient temperature, hydration, or concurrent home remedies were not controlled or evaluated, which may have influenced the outcome.

Suggest Future Research

Future studies should involve larger sample sizes and consider a controlled experimental design to better assess the efficacy of Aloe Vera compresses. Further investigation into the

optimal frequency, duration, and formulation of Aloe Vera application would also strengthen the evidence base for its clinical use.

Conclusion

The author conducted a 3x24-hour assessment of An. R. The steps used in the assessment included interviews, observation, physical examination, and documentation of the results. In a direct interview with An. R, the author obtained identity data and a medical history, including the chief complaint, current medical history, previous medical history, and a history of hereditary diseases in the family. The author also conducted observations and a thorough physical examination from head to toe.

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Conflict of Interest

This research did not experience any conflicts.

Ethical Clearance

Ethical approval has been obtained from Muhammadiyah Ciamis Health College and informed consent from the patient's parents.

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