

Application of Aloe Vera Compress to Reduce Body Temperature of Post-Op Patients Submandibular Abscess Drainage Incision with Hyperthermia Nursing Problems in the Children's Ward of Raden Mattaher Hospital, Jambi Province

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Abstract

One of the symptoms of submandibular abscess is hyperthermia due to increased white blood cells. One non-pharmacological treatment that can be used to treat fever in children is a warm compress. There are also other compress methods that can be used, namely with the traditional plant Aloevera or what is commonly known as aloe vera. The aim of this case study is to provide an overview of giving aloe vera compresses to reduce the body temperature of children with a nursing diagnosis of hyperthermia. The case study was carried out for 3 days by providing nursing care to patients with hyperthermia nursing problems using observation techniques, interviews, literature studies, and administering aloe vera compresses based on Evidence Based Nursing. From the implementation, the results showed that after being given the aloe vera compress, the patient's body temperature decreased, namely on the first day the temperature before implementation was 39.4⁰C and after the implementation, the temperature dropped to 39⁰C. on the second day before being given the implementation the body temperature was 37.8⁰C and after giving the implementation the body temperature dropped to 37.3⁰C. The conclusion from this case study was that the nursing evaluation showed that there was a decrease in the patient's body temperature after being given the implementation of aloe vera compress.

Keywords: Submandibular Abscess, Hyperthermia, Aloe Vera

Introduction

An abscess is a collection of pus located in a sac that forms in the tissue caused by an infection process by bacteria, parasites or other foreign objects. An abscess is a defense reaction that aims to prevent infectious agents from spreading to other parts of the body ^{1,2,3}

Submandibular abscess is an inflammation accompanied by the formation of pus in the submandibular area. This situation is an infection of the inside of the neck (deep neck infection). Submandibular abscess is part of the deep neck abscess which forms in the potential space between the deep neck fascia as a result of the spread of infection from various sources, such as the teeth, mouth, throat, paranasal sinuses, middle ear and neck. ^{4,5,6}

In general, the source of infection in the submandibular space comes from infections of the teeth, floor of the mouth, pharynx, submandibular lymph nodes, trauma and continued infection from other deep neck spaces. Dental or odontogenic infections are the most common cause of submandibular abscesses. Dental infections can affect the pulp and periodontal. The spread of infection can extend through the apical foramen of the tooth to the surrounding area. Most submandibular abscesses are caused by dental infections, namely 70-85%^{7,8,9}.

In Indonesia, submandibular abscess is the first most frequently encountered neck abscess (42.3%) with a prevalence of odontogenic causes of 34.21%.^{7,30}. The incidence of submandibular abscess is more common in men than women with a ratio of 3:2. The frequency of submandibular abscess is 13.5% - 60%³.

One of the symptoms of a submandibular abscess is hyperthermia or increased body temperature. Hyperthermia is an increase in body temperature which can be caused by hormonal disorders, metabolic disorders, use of drugs or an increase in the temperature of the surrounding environment (Lusia, 2019). Fever is one of the body's signs that the body has a process of fighting infection, a temperature > 37.5°C can be classified as a fever caused by infection and autoimmune disease, the body's heat loss mechanism may not be produced excessively at body temperature.^{10,11,28}.

Pharmacological action that can be taken is giving antipyretic drugs. Several types of antipyretic drugs are given by parents when they find out that their child's temperature is rising, such as paracetamol, salicylic acid, ibuprofen, and others. However, the actual use of antipyretic drugs has several side effects such as bronchial spasm, gastrointestinal bleeding, decreased kidney function, and also inhibits the suppression of serum antibody responses.^{10,12,26}

Meanwhile, non-pharmacological treatment methods that can be used to reduce fever include compresses, wearing thin clothes, consuming lots of drinking water, and making the environment comfortable and cool with air conditioning or fans.^{11,12,25}

Of the several non-pharmacological treatments that can be used to treat fever in children, there are warm compresses, there are also other compress methods that can be used, namely with the traditional plant Aloe vera or what is commonly known as aloe vera.^{10,13,27}

According to Amelia, et al (2023), aloe vera compresses have been proven to be effective in reducing body temperature in children with fever. The method of releasing heat with an aloe vera compress uses the principle of conduction. Through this method, heat from the body can move into the aloe vera. Conduction occurs between the temperature of the aloe vera and the surrounding tissue, including blood vessels, so that the temperature of the blood passing through that area can decrease. Then the blood will flow to other parts of the body and the conduction process continues so that after applying a compress using aloe vera, the patient's body temperature can decrease ^{14,15,16}

The aloe vera plant contains saponins which have benefits when body temperature decreases. When aloe vera is placed on the forehead of a child who has a fever, the saponin in the aloe vera will vasodilate the skin, so that it can speed up the action of lignin which has a high absorption capacity in reducing body temperature and penetrates into the pores. Aloe vera has a natural acidity (pH), similar to the pH of human skin, which can prevent skin allergy problems for users, especially children who have sensitive skin. ^{8,17,24}.

According to Afsani (2023), the Aloe vera compress technique is effective in reducing body temperature in patients diagnosed with fever. Aloe vera or what is often known as aloe vera can be found in the home environment and is usually used as a family medicinal plant, this is because aloe vera has a water content of 95%. With its large enough water content, it can be used to reduce fever through the mechanism of absorbing heat from the body and transferring that heat to water molecules, thereby lowering body temperature. A decrease in fever temperature can occur because water has a greater heat capacity of evaporation, namely 0.6 kilocalories ^{19,29}

From the description of the background above, the author is interested in preparing a Final Scientific Work report for Nurses with the title "Application of Aloe Vera Compress to Reduce Body Temperature of Post-Op Submandibular Abscess Patients with Hyperthermia Nursing Problems in the Children's Ward of Raden Mattaher Regional Hospital, Jambi Province"

Methods

This type of research uses qualitative descriptive research, the research design uses descriptive research methods with a nursing care case study approach, which includes assessment, nursing diagnosis, intervention, implementation and evaluation. The case study was conducted from 03 – 05 June 2024 in the Children's Ward of Raden Mattaher Regional Hospital, Jambi Province. The respondent in this case study was an 8 year old child with a nursing problem of hyperthermia, who was given the intervention of giving an aloe vera compress for 20 minutes. Before and after administering the intervention, body temperature was checked. The instrument used is aloe vera which has been cut and peeled then washed and wrapped in gauze. *thermometer digital*, observation sheet.

Study Results

Study of An. B carried out on June 3, 2024. An. B, male, was born on August 29 2015. During An's assessment. B is 8 years old. He was admitted to hospital on May 31 2024 through the emergency room and was treated in the Children's Ward at Mattaher Regional Hospital with a diagnosis of Submandibular Abscess. Current medical history, An. B has a fever with a temperature of 39.4⁰C, Pulse 145 x/minute, body weakness, and skin feels warm and looks reddish.

Diagnosis and Intervention

From the results of the assessment, a nursing diagnosis was obtained for An. B is Hyperthermia related to the Disease Process and the nursing intervention given is Hyperthermia Management and non-pharmacological intervention, namely giving aloe vera compresses

Implementation

Implementation of aloe vera compresses to reduce body temperature. Implementation is given for 3 days. Aloe vera compress is given by cutting the aloe vera into 15 cm pieces, peeling it, then washing the aloe vera flesh using running water, and wrapping it in clean gauze, then placing it on the patient's forehead for 20 minutes. Treatment day 1: on June 3 2024, before taking action, first observe the patient's condition, then measure the patient's temperature with a digital thermometer in the axilla, monitor the patient's pulse. When measuring the

temperature, the result was 39.4⁰C and pulse 145x/minute. Then, an aloe vera compress is given to the patient's forehead for 20 minutes, before asking for permission from the parents. After that, it was re-evaluated by measuring the patient's body temperature, which decreased to 39⁰C. on June 4 2024, before taking action, first observe the patient's condition, then measure the patient's temperature with a digital thermometer in the axilla. When measuring the temperature, the result was 37.8⁰C. Then an aloe vera compress is given to the patient's forehead for 20 minutes, before asking for permission from the parents. After that, it was re-evaluated by measuring the patient's body temperature, which decreased to 37.3⁰C. on June 5 2024, before taking action, first observe the patient's condition, then measure the patient's temperature with a digital thermometer in the axilla. When measuring the temperature, the result was 36.7⁰C. Then on the 3rd day no aloe vera compress intervention was given because the patient's body temperature was already normal.

Evaluation

Hyperthermia is related to the disease process, the nursing problem was resolved on the 3rd day, where An B's mother said her child's body was no longer hot and the temperature measurement result was 36.7.⁰C, then the intervention is stopped. The following is an overview of the evaluation of the implementation of giving aloe vera compresses to An. B

Day/Date/Time	Decreased body temperature in An.B	
	Before Intervention	After Intervention
Monday/03 June 2024/17.00 WIB	39,4 ⁰ C	39 ⁰ C
Monday/03 June 2024/17.00 WIB	37,8 ⁰ C	37,3 ⁰ C

Discussion

The intervention given to An.B with the priority nursing problem of hyperthermia was by administering aloe vera compresses. Aloe vera compress is given for 2 days with a duration of 20 minutes. According to Amelia, et al (2023)

aloe vera can transfer heat using the conduction method. Therefore, aloe vera can be used as a non-pharmacological technique to reduce a child's body temperature because aloe vera contains 95% water which acts as a conductor. With this conductor method, heat from the child's body can move into the aloe vera. This conduction method occurs between the aloe vera duhu and the surrounding tissue, including blood vessels, so that blood will flow throughout the body, bringing cool temperatures so that body temperature will reach normal levels. has benefits when reducing body temperature. When aloe vera is placed on the forehead of a child who has a fever, the saponin in the aloe vera will vasodilate the skin, thereby speeding up the action of lignin which has high absorption capacity in reducing body temperature and penetrates into the pores. ^{17,18,19}

On the first day of implementation, the body temperature before the aloe vera compress was given was 39.4⁰C, then after giving the aloe vera compress, the body temperature was measured and the result was 39⁰C, there is a decrease in temperature of 0.4⁰C. Then on the second day before the aloe vera compress was given the patient's body temperature was 37.8⁰C, then after being given an aloe vera compress, the body temperature was measured again and the result was 37.3⁰c, there is a decrease in temperature of 0.5⁰C.

This is in line with research conducted by Purnomo, et al (2019) which stated that there was an effect of giving Aloe Vera compresses in reducing the body temperature of children with fever with the results of statistical tests on children's body temperatures before giving Aloe Vera compresses and after giving Aloe Vera compresses which had a significance result of 0.002 or <0.005. Thus there is a difference between body temperature before giving the Aloe vera compress and after giving the Aloe vera compress ²²

According to Ferdianti (2022), there was a decrease in the body temperature of the two research subjects after the intervention. The body temperature of research subject I before the intervention reached 38.4⁰C. The body temperature of research subject II before the intervention reached 37.9⁰C. Research subject I, after being given the aloe vera compress intervention, experienced a decrease in body temperature reaching 37.5⁰C. Research subject II, after being given the aloe vera

compress intervention, experienced a decrease in body temperature reaching 37.0°C. So there is a significant effect between giving aloe vera compresses on reducing the body temperature of preschool-aged children ¹⁸

The nursing diagnosis of hyperthermia was resolved on the 3rd day when the body temperature had dropped to normal body temperature, namely 36.7°C. The significant decrease in temperature in the patient is in addition to the factor of giving the aloe vera compress, namely due to the collaboration in giving the antipyretic paracetamol at a dose of 1 x 17 cc.

According to Amelia, et al (2023) the temperature range after giving an aloe vera compress is 0.4°C - 1°C. In Case 2, a decrease in body temperature of up to 1°C was seen. There was a significant change in temperature compared to Case 1. This was caused by the collaboration factor in administering antipyretics in Case 2 ¹⁹

Conclusion

Non-pharmacological therapy by administering aloe vera compresses has an effect on reducing the temperature of patients with hyperthermia, namely by reducing the temperature by 0.4°C on the first day and 0.5°C on the second day. A significant decrease in body temperature in patients can occur due to the collaboration factor of administering antipyretics to patients. It is hoped that this case study can increase insight, knowledge and references for students in nursing and can develop research related to hyperthermia nursing problems. It is hoped that people who read can add information about the initial treatment of children with fever by giving aloe vera compresses independently

Reference

1. Neltio Ariobimo B, Nujum N, Ponco D, Saputro H. ABSES SUBMANDIBULA. *Healthy Tadulako Journal (Jurnal Kesehatan Tadulako)*. 2023 May 2;9(2):250–6.
2. Amran, A. J., Irawati, E., Hasanuddin, N. R., & Mulyati, S. E. (2023). Insidensi Abses Maksilofasial Akibat Impaksi Molar Ketiga Mandibula. *DENThalib Journal*, 1(3), 68-72.

3. Khaerunnisa, R., & Nindya, T. (2019). Manajemen kedaruratan dental pada abses submandibula dextra et causa nekrosis pulpa gigi 44. *Medika Kartika: Jurnal Kedokteran dan Kesehatan*, 3(1), 62-70.
4. Ariobimo, B. N., Nujum, N., & Saputro, D. P. H. (2023). Abses Submandibula. *Healthy Tadulako Journal (Jurnal Kesehatan Tadulako)*, 9(2), 250-256.
5. Anggreni setiawan PD, Putra IDAE. Karakteristik penderita abses submandibula di Departemen THT-KL RSUP Sanglah Denpasar. *Medicina (B Aires)*. 2020 Feb 10;51(2).
6. Annisa, F., Indrayoni, P., Kristina, K., Lestari, Y. E., Utami, R. T., Yulistina, P. D., ... & Chabibah, N. (2024). *Buku Ajar Patofisiologi*. PT. Sonpedia Publishing Indonesia.
7. Aryani, A., Fardani, S. R., Hayuti, T. G., Ginari, A. P. A., & Hartomo, B. T. (2022). Penegakan Diagnosis dan Penatalaksanaan Abses Submandibula. *Indonesian Journal of Dentistry*, 2(1), 7-15.
7. Utari IGAOS. Distribusi Penderita Abses Submandibula di Bagian T.H.T.K.L RSUD Bangli Bali periode Ajanuari 2016 Sampai Desember 2018. *Jurnal Kedokteran*. 2019;05:187–97.
8. Khairunnisa R, Nindya T. Manajemen Kedaruratan Dental Pada Abses Submandibula Dextra Et Causa Nekrosis Pulpa Gigi 44 (Dental Emergency Management Of Submandibular Dextra Abscess Et Causa Necrosis Pulp 44). *Jurnal Kedokteran Dan Kesehatan*. 2019 Oct;3:62–70.
9. Afsani, M., Yulendasari, R., & Chrisanto, E. Y. (2023). Penerapan terapi kompres aloe vera untuk menurunkan suhu tubuh pada pasien hipertermi. *THE JOURNAL OF Mother and Child Health Concerns*, 3(1), 29-34.
10. Putri, R. H., Dwi Fara, Y. E. T. T. Y., Dewi, R. U. S. M. A. L. A., Sanjaya, R., & Mukhlis, H. (2020). Differences In The Effectiveness Of Warm Compresses With Water Tepid Sponge In Reducing Fever In Children: A Study Using A Quasi-Experimental Approach. *International Journal Of Pharmaceutical Research (09752366)*, 12(4).
11. Windawati, W., & Alfiyanti, D. (2020). Penurunan Hipertermia Pada Pasien Kejang Demam Menggunakan Kompres Hangat. *Ners Muda*, 1(1), 59.
12. Barus, D. T., & Boangmanalu, E. M. (2020). Efektivitas Intervensi Kompres Aloe vera Terhadap Penurunan Suhu Tubuh Anak Fever Di Puskesmas Bahbiak Kota Pematangsiantar Kec. Siantar Marimbun. *Jurnal Keperawatan Medik*, 3(1), 120-131.

13. Andriani, G., & Iswati, N. (2023, January). Asuhan Keperawatan Manajemen Hipertermia Dengan Penerapan Kompres Aloe vera Pada Pasien Demam Typhoid Di Rumah Sakit PKU Muhammadiyah Gombong. In *Prosiding University Research Colloquium* (pp. 311-315).
14. Resti, Y. (2023). *Analisis Asuhan Keperawatan Pada An. A Dengan Kejang Demam Yang Diberikan Evidence Based Practice Terapi Kompres Aloe vera Untuk Menurunkan Suhu Tubuh Pada Anak Yang Mengalami Demam di Ruang HCU Anak RSUP Dr. M. Djamil Padang* (Doctoral dissertation, STIKes MERCUBAKTIJAYA PADANG).
15. Lusia. *Mengenal Demam Dan Perawatannya Pada Anak*. 1st Ed. Airlangga University Press; 2019.
16. Pangesti, W., & Murniati, M. (2023). Penggunaan Kompres Aloe vera untuk Menurunkan Suhu Tubuh Anak Demam: Case Study. *Jurnal Manajemen Asuhan Keperawatan*, 7(2), 88-94.
17. Ferdianti A. *Kompres Aloe vera Terhadap Penurunan Suhu Tubuh Pada Anak Demam Usia 3-6 Tahun*. Jakarta; 2022.
18. Afsani M, Yulendasari R, Yudha Chrisanto Universitas Malahayati Korespondensi Penulis E. Penerapan Terapi Kompres Aloe vera Untuk Menurunkan Suhu Tubuh Pada Pasien Hipertermi. Vol. 3, *Journal Of Mother And Child Health Concerns*. 2023.
19. Amelia D, Agiani Putri S. Penerapan Terapi Kompres Aloe Vera Pada Anak Demam [Internet]. Vol. 2. Riau; 2023 Jun. Available From: <https://jurnal.jomparnd.com/index.php/jkj>
20. Zakiyah, F., & Rahayu, D. A. (2022). Penerapan kompres menggunakan aloe vera untuk menurunkan suhu tubuh anak dengan hipertermia. *Ners Muda*, 3(2), 141-147.
21. Nuraeni, Y. V. (2022). *Aplikasi Penggunaan Kompres Aloe Vera Terhadap Pasien Anak Usia Toddler (1-3 Tahun) Pada Typhoid Dengan Hipertermi* (Doctoral Dissertation, Universitas Muhammadiyah Sukabumi).
22. Purnomo B, Widyastuti Y, Sarifah S. Pengaruh Pemberian Kompres Aloe Vera Terhadap Penurunan Suhu Tubuh Anak Demam Usia 3-6 Tahun Di Puskesmas Nusukan Jurnal Publikasi. 2019;
23. Aurelia, K. W., & Cahyaningrum, E. D. (2023). Asuhan Keperawatan Hipertermia pada Anak Tifoid di Ruang Wijayakusuma Atas RSUD Kardinah Tegal. *Jurnal Sehat Mandiri*, 18(2), 235-246.
24. Isnainy, C. A. S., Zainaro, M. A., & Wandini, R. Pendidikan Kesehatan Tentang Kompres Hangat Untuk Demam Di Margorejo Dusun 6 Kecamatan

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25. Sudibyoy, D. G., Anindra, R. P., El Gihart, Y., Ni'azzah, R. A., Kharisma, N., Pratiwi, S. C., ... & Hermansyah, A. (2020). Pengetahuan ibu dan cara penanganan demam pada anak. *Jurnal Farmasi Komunitas*, 7(2), 69-76.
26. Zulfariyani, A. (2019). *Inovasi pemberian kompres aloevera untuk menurunkan suhu pada anak hipertermi di wilayah kota Magelang* (Doctoral dissertation, Tugas Akhir, Universitas Muhammadiyah Magelang).
27. Wulandari, Y., & Nuriman, A. (2022). Efektifitas Kompres Hangat Terhadap Penurunan Suhu Tubuh Pada Anak Dengan Typhoid. *Jurnal Keperawatan Bunda Delima*, 4(2), 44-54.
28. Saragih, N. H., & Lestari, R. F. (2023). Analisis Asuhan Keperawatan Pada Anak Dengan Penerapan Terapi Kompres Aloe vera Terhadap Penurunan Suhu Tubuh. *Jurnal Ilmiah Keperawatan IMELDA*, 9(1), 41-47.
29. Wulansari, I., Widiastuti, M. G., & Rahardjo, R. Abses Submandibula Odontogenik pada Penderita Idiopatik Trombositopeni Purpura di RSUP Dr. Sardjito. *MKGK (Majalah Kedokteran Gigi Klinik)(Clinical Dental Journal) UGM*, 2(1), 19-25.