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Effect Of Antibacterial Gel Of Bidara Leaf Extract For Episiotomy Wound Healing At Hams RSU, 2021

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ABSTRACT

Wounds to the perineum or episiotomy are difficult to keep clean and dry. Special observations andcare are needed to ensure the perineal part can heal quickly and inspections should be carried out to find out if there are signs of infection or inflammation of the part. One of the medicinal plants that have the potential to treat wounds is the Bidara plant (Ziziphus Mauritiana). The Bidara plant (Ziziphus Mauritiana) is a plant that has many properties and has been used for herbal medicine in several countries and has been clinically investigated for its content such as the content of alkaloid compounds, glycosides, saponins, flavonoids, tertenoids and phenolics as well as the most abundant antioxidant activity in the leaves. .This research is a quantitative research using pre-experimental or quasi method. This study was conducted to determine the effect of using antibacterial gel of bidara leaf extract on episiotomy wound healing in the working area of HAMS KISARAN RSU. Based on the results of statistical tests using the Wilcoxon test, it is known that the p value (0.005) < (0.05) means Ho is rejected, so there are differences in episiotomy wound healing before and after the use of antibacterial gel of bidara leaf extract. These results prove that there is a significant effect of using antibacterial gel of bidara leaf extract on episiotomy wound healing at HAMS Hospital Kisaran. These results prove that the use of antibacterial gel of bidara leaf extract is effective in accelerating episiotomy wound healing.

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1. Introduction

Wound on the perineum or Episiotomy is part of which is difficult to maintain keep clean and dry. Special observations and care are needed to ensure the perineal part can heal quickly and inspections should be carried out to find out if there are signs of infection or inflammation of the part1. Almost than 90% During the delivery process, many people experience a perineal tear both with episiotomy and without episiotomy. Usually the wound healing in this tear will heal varies, some heal normally and some experience delays in healing, this can be influenced by several things including the characteristics of the mother in labor, nutritional status, condition of the wound and its treatment.

Perineal wound management can be given conventional or complementary therapy so that complementary therapy is also known as traditional medicine3. In some Asian and African countries up to 80% of the resident depends on traditional medicine for their primary health care needs. When applied outside traditional culture, traditional medicine is often referred to as complementary and alternative medicine4. One of the medicinal plants that have the potential to treat wounds is the Bidara plant (Ziziphus Mauritiana). Bidara plant (Ziziphus Mauritiana) is a plant that has many benefits and has been used for herbal medicine in several countries and has been clinically studied for its content such as alkaloids, glycosides, saponins, flavonoids.

Based on research conducted by Maulana Siregar in 2020 it was concluded that bidara leaves have many benefits. The biggest benefit of bidara leaves is as an antimicrobial, besides that there are also many other benefits such as analgesic, antipyretic and anti-inflammatory, anticancer, as well as in functioning as a protector of body cells such as the kidneys, liver and brain7. Bidara Leaf Extract can be developed in the form of a gel based on the research of Tri Yuni E, Lita RP, Safitri W in 2019 which states that the gel extracted from bidara leaves will not irritate the skin and meet the requirements of physical parameters and good physical stability of the gel. Then testing the antibacterial activity of Bidara bark extract, Sameera and Mandikini in 2015 showed that methanol extract of Bidara bark has potential as a source of antibacterial drugs9. In 2016 Abdallah et al also investigated the antioxidant and antibacterial activity of methanol extract from bidara leaves and showed that several bioactive phytochemical constituents such as saponins, tannins, alkaloids, phenolic compounds, terpenoids and flavonoids contained in bidara leaves. Methanol extract of bidara leaves has significant antibacterial activity of Bacillus cereus ATCC 10876 and Proteus vulgaris (isolate multi drug resistance); and varying degrees of activity against other bacterial

strains. This study aims to determine the effect of Dar In 2016 Abdallah et al also investigated the antioxidant and antibacterial activity of methanol extract from bidara leaves and showed that several bioactive phytochemical constituents such as saponins, tannins, alkaloids, phenolic compounds, terpenoids and flavonoids contained in bidara leaves. Methanol extract of bidara leaves has significant antibacterial activity of Bacillus cereus ATCC 10876 and Proteus vulgaris (isolate multi drug resistance); and varying degrees of activity against other bacterial strains. This study aims to determine the effect of Dar In 2016 Abdallah et al also investigated the antioxidant and antibacterial activity of methanol extract from bidara leaves and showed that several bioactive phytochemical constituents such as saponins, tannins, alkaloids, phenolic compounds, terpenoids and flavonoids contained in bidara leaves. Methanol extract of bidara leaves has significant antibacterial activity of Bacillus cereus ATCC 10876 and Proteus vulgaris (isolate multi drug resistance); and varying degrees of activity against other bacterial strains. This study aims to determine the effect of Dar Methanol extract of bidara leaves has significant antibacterial activity of Bacillus cereus ATCC 10876 and Proteus vulgaris (isolate multi drug resistance); and varying degrees of activity against other bacterial strains. This study aims to determine the effect of Dar Methanol extract of bidara leaves has significant antibacterial activity of Bacillus cereus ATCC 10876 and Proteus vulgaris (isolate multi drug resistance); and varying degrees of activity against other bacterial strains. This study aims to determine the effect of Dari Antibacterial Gel Bidara Leaf Extract Against Episiotomy Wound Healing,

Bidara Leaves mauritiana is a shrub or thorny tree up to 15 m high, trunk diameter of 40 cm or more. Bark dark gray or black, chapped irregularly. The leaves are single and alternate, 4-6 cm long and 2.5-4.5 cm wide. The petiole is hairy and on the margins of the leaves there are very fine teeth. One-seeded fruit, round to ovoid, about 6x4 cm in size, smooth or rough skin, shiny, yellowish to reddish or blackish in color, white flesh, crunchy, slightly sour to sweet.

Mauritiana has many benefits. Traditionally this plant is used as a tonic. The seeds of Z. mauritiana are reported to have a sedative effect and are recommended as sleeping pills. It is also used to stop nausea, vomiting and to relieve pain in pregnancy and for wound healing. Leaves of Z. mauritiana are used to treat diarrhea, reduce fever and as an anti-obesity. In Ayurveda, dekoxy from the root of Z. mauritiana is used to treat fever, and the powder is used to treat wounds and ulcers. The bark is used for the treatment of diarrhea and ulcers. Z. mauritiana fruit has a mild laxative effect. Then the content of saponins also functions as an antibacterial, antifungal, antioxidant, and anti-inflammatory substance.

Plant Z. Mauritiana contains various compounds such as pectin A, glycosides, alkaloids, triterpenoic acid and lipids. Z. mauritiana contains triterpenoic acids such as colubrinic acid, alpitolic acid, 3-O-cis-pkumaroylapitolic acid, 3-O-trans-p-kumaroylapitolic acid, 3-O-cis-p-coumaroylmaslinic acid, 3-O-trans-p -Coumaroylmaslinic acid, oleanolic acid, betulonic acid, oleanonic acid, zizyberenalic acid and betulinic acid. Saponins isolated from the seeds of Z. mauritiana included jujubosides A, B, A1, B1, C and acetyljujubosides B. Protojujubosides A, B, B1 and ziziphin were present in the leaves of Z. mauritiana. Pericarp and seeds of Z. mauritiana contain phosphatidylcholine, phosphatidylglycerol and fatty acids such as linoleic, oleic and stearic acids. Perineal Wound PBasically, both serious wounds and minor injuries can heal on their own by going through natural processes in the body to repair damaged tissue. Perineal wound is an injury to the urogenital diaphragm and levatorani muscle, which occurs during normal delivery, or delivery with a device, can occur without injury to the perineal skin or the vagina, so it is not visible from the outside. Injury to the birth canal is certain to occur in every delivery which will become the entry point for bacteria that are commensal and become infectious. This will increase the risk of post partum infection with perineal injury due to episiotomy, spontaneous rupture and trauma by the fetus. Although these wounds are localized, proper care is needed to avoid systemic spread of infection. Poor perineal wound care can lead to infection. The condition of the perineum that is exposed to lochia and moist will greatly support the proliferation of bacteria that can cause infection in the perineum. The incidence of infection in the mother is 20%. Perineal wound infection accounted for 11%. Various efforts have been made to overcome the infection, but these efforts are still not optimal. The appearance of infection in the perineum can spread to the bladder tract or infection of the birth canal. Infection not only inhibits the wound healing process but can also cause damage to cellular tissue. Episiotomy is a surgical incision made in the perineum to facilitate the delivery of a percentage of the fetus. Although it used to be routine, systematic review of the evidence confirmed that this practice should be limited to clinical needs. Routine episiotomy is not

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recommended because it can increase the amount of blood lost and the risk of hematoma, increase the risk of infection, labor pain, third-degree laceration or otomy. Currently midwives in delivery assistance are maternal care, namely minimizing invasive actions by not performing an episiotomy on every mother giving birth, except for certain indications such as shoulder dystocia, buttock position, and perineal rigidity. This episiotomy must be done with the consent of the mother or family. Perineal rupture can occur due to spontaneous rupture or episiotomy. According to East, CE, Sherburn, M., Nagle, C., Said, J., Forster, D. (2012) showed that pain at the episiotomy site can affect the condition of the mother during the puerperium, including during lactation, care for her baby, and their daily activities.

2. Method

1. Research design
   This research is a quantitative research using pre-experimental or quasi method. This study was to determine the effect of the use of antibacterial gel of bidara leaf extract on episiotomy wound healing in the working area of the Tanjung Medan Public Health Center.
2. Population and sample
   The population in this study were all postpartum mothers who had an episiotomy in the working area of the Tanjung Medan Public Health Center. The sample size was 60 postpartum mothers who were episiotomy with purposive sampling technique.
3. Data collection
   The type of data collected is primary data in the form of the identity of the respondent, along with the variables studied through a questionnaire. Secondary data obtained from medical records.
4. Data processing and data analysis
   Data in the form of mother's attitude in the use of antibacterial gel bidara leaf extract, will be processed using SPSS software version 20. Data analysis will be carried out using quantitative analysis to obtain conclusions in the study.

3. Research Results and Discussion

3.1. Univariate Analysis

3.1.1. Characteristics of Respondents

TABLE 1.
CHARACTERISTICS OF RESPONDENTS AT RSUD HAMS KISARAN IN 2021

No	Demographic Data	Frequency	Percentage (%)
1	**Age**		
	<25 years old	16	26.7
	25-35 years old	38	63.3
	>35 years old	6	10.0
	Amount	60	100
2	**Education**		
	Elementary/Junior High (Low)	9	15.0
	High School (Intermediate)	44	73.3
	D-III/ S-1 (High)	7	11.7
	Amount	60	100
3	**Parity**		
	Primipara	29	48.3
	Multipara	31	51.7
	Amount	60	100

Characteristics of respondents based on demographic data by age are the majority aged 25-35 years as many as 38 people (63.3%), based on education are the majority with high school education (SMA), namely 44 people (73.3%), based on parity the majority are multiparous as many as 31 people (51.7%).

3.1.2. Overview of Episiotomy Wound Healing in Postpartum Mothers Before Giving Antibacterial Gel Bidara Leaf Extract

Data distribution the description of episiotomy wound healing in postpartum women before being given an antibacterial gel of bidara leaf extract at the RSUD HAMS Kisarancan be seen in table 2 below:

TABLE 2.
OVERVIEW OF EPISIOTOMY WOUND HEALING IN POSTPARTUM MOTHERS BEFORE GIVING ANTIBACTERIAL GEL BIDARA LEAF EXTRACT AT RSUD HAMS KISARAN

No	Episiotomy Wound Healing Indicator	Frequency	%
1	**Wound Condition**		
	a. Wet	52	86.7
	b. Dry	8	13.3
2	**Episiotomy Wound Healing**		
	a. Well	0	0.0
	b. Currently	42	70.0
	c. Bad	18	30.0
	Amount	**60**	**100**

Based on table 2. shows that the description of the condition of the perineal wound before being given antibacterial gel of bidara leaf extract was majority in the wet category as many as 52 people (86.7%). While the description of episiotomy wound healing in postpartum women before being given antibacterial gel of bidara leaf extract was majority in the moderate category as many as 42 respondents (70.0%).

3.1.3. Overview of Episiotomy Wound Healing in Postpartum Mothers After Giving Antibacterial Gel Bidara Leaf Extract

Data distribution the description of episiotomy wound healing in postpartum women after being given an antibacterial gel of bidara leaf extract at the RSUD HAMS Kisaran can be seen in table 3 below:

TABLE 3.
OVERVIEW OF EPISIOTOMY WOUND HEALING IN POSTPARTUM MOTHERS AFTER GIVING ANTIBACTERIAL GEL BIDARA LEAF EXTRACT AT RSUD HAMS KISARAN

No	Episiotomy Wound Healing Indicator	Frequency	%
1	**Wound Condition**		
	a. Wet	12	20.0
	b. Dry	48	80.0
2	**Episiotomy Wound Healing**		
	a. Well	38	63.3
	b. Currently	22	36.7
	c. Bad	0	0.0
	Amount	**60**	**100**

Based on table 3. shows that description of the condition of the perineal wound before being given antibacterial gel of Bidara leaf extract, the majority in the dry category as many as 48 people (80.0%). While the description of episiotomy wound healing in postpartum women before being given antibacterial gel of Bidara leaf extract was mostly in the good category as many as 38 respondents (63.3%).

3.1.4. The Effect of Using Antibacterial Gel Extract of Bidara Leaves on Episiotomy Wound Healing in RSUD HAMS Kisaran

This analysis was used to determine the effect of the use of antibacterial gel of Bidara leaf extract on episiotomy wound healing in RSUD HAMS Kisaran with statistical tests. The statistical test used is the Wilcoxon test can be seen in table 4. below.

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TABLE 4.
THE EFFECT OF USING ANTIBACTERIAL GEL BIDARA LEAF EXTRACT ON EPISIOTOMY WOUND HEALING AT RSUD HAMS KISARAN

Episiotomy Wound Healing	Giving Antibacterial Gel Bidara Leaf Extract				*Z*	*p value*
	Pre		Post			
	F	%	f	%		
Well	0	0.0	38	63.3		
Enough	42	70.0	22	36.7	-7,100	0.000
Bad	18	30.0	0	0.0		

From table 4. it can be seen that episiotomy wound healing after being given antibacterial gel of bidara leaf extract was better than before treatment. Prior to treatment, episiotomy wound healing was still moderate with a median episiotomy wound healing score of 5 (moderate). Meanwhile, after being given antibacterial gel treatment of bidara leaf extract, the median episiotomy wound healing score decreased to 3 in the good category.

Based on the results of statistical tests using the Wilcoxon test, it is known that the p value (0.005) < (0.05) means Ho is rejected, so there are differences in episiotomy wound healing before and after the use of antibacterial gel of bidara leaf extract. These results prove that there is a significant effect of using antibacterial gel of bidara leaf extract on episiotomy wound healing at RSUD HAMS Kisaran. These results prove that the use of bidara leaf extract antibacterial gel is effective in accelerating episiotomy wound healing.

3.2. Discussion

3.2.1. Healing of Episiotomy Wounds in Postpartum Mothers Before Giving Antibacterial Gel Bidara Leaf Extract at RSUD HAMS Kisaran

Based on the results of research before treatment (*pre-test*) showed that the description of the condition of the episiotomy wound before being given antibacterial gel of bidara leaf extract was majority in the wet category as many as 52 people (86.7%). While the description of episiotomy wound healing in postpartum women before being given antibacterial gel of bidara leaf extract was majority in the moderate category as many as 42 respondents (70.0%).

This study is in line with Safitri is research (2020) that in the group that was not given treatment or using betadine, perineal wound healing was quite slow, namely with a wet wound condition and a moderate or slow perineal wound healing process.

According to Imron (2018), the use of betadine for wound care is not only able to accelerate the wound healing process but also has a bad impact on the wound. Betadine has a reddish effect in the wound area because it contains iodine which can improve the skin color to dark red an.d wounds that are given betadine will become very dry, so it can slow down the growth process and the formation of new tissue. The theory opinion from Maureen Boyle in Safitri (2020) which states that antiseptics are chemicals that prevent, slow or stop the growth of microorganisms (bacteria and fungi) on the outer surface of the body and prevent infection.

Based on the results of the study, the process of accelerating episiotomy wound healing was caused by several factors including the environment, tradition, knowledge, socio-economics, handling officers, maternal condition, nutritional status, age, tissue management, haemorragi, hypoveleria, local factors oedema, nutritional deficit, personal hygiene, oxygen deficit, medication, and overactivity. Normally the wound can heal for 6-7 days if a mother can take good care, on the contrary if the wound is not treated properly then the wound healing process will take longer and can cause infection (Kurniarum, 2014).

In table 1, it can be seen that the characteristics of respondents based on the average age of respondents are between 25-35 years old. Maturity of the mother's age can influence in choosing a decision and the attitude of the mother when doing perineal wound care properly, so that it can support in accelerating the perineal wound healing process properly in a span of less than 7 (seven) days. Age will have an impact on episiotomy wound healing in the majority of mothers.

According to the researcher's assumption, the respondents' perineal wound healing before

being given antibacterial gel of bidara leaf extract was quite slow. Therefore, by giving antibacterial gel, bidara leaf extract is expected to accelerate the episiotomy wound healing process to be faster.

3.2.2. Healing of Episiotomy Wounds in Postpartum Mothers After Giving Antibacterial Gel Bidara Leaf Extract at RSUD HAMS Kisaran

Based on the results of the study after treatment showed that description of the state of episiotomy wounds in postpartum mothers after being given antibacterial gel of bidara leaf extract, the majority in the dry category as many as 48 people (80.0%). While the description of episiotomy wound healing in postpartum women before being given antibacterial gel of bidara leaf extract was mostly in the good category as many as 38 respondents (63.3%).

This is the same as the research that has been carried out by Wijayanti & Esti (2017), namely giving binahong boiled water to postpartum mothers with the results of the condition of the perineal wound being in the good category of 90.9%, so it can be analyzed that there is a significant difference between the boiled water of binahong leaves and betadine. on the healing of perineal wounds in postpartum mothers. In addition, research from Imron (2018) stated that postpartum mothers who were given perineal care with binahong boiled water had a wound healing time of 5 days with dry perineal wound conditions.

According to Maureen Boyle in Safitri (2020), wound healing is a complex kinetic and metabolic method that can involve many cells and tissues in an effort to close the body from the external environment through the process of restoring tissue integrity. Every time a wound occurs, whether it is a clean wound or an infected one, the body will try to heal the wound. Wound healing is a process to repair and replace the function of damaged tissue.

All respondents were given the same treatment, namely the provision of antibacterial gel gel of bidara leaf extract on the perineal wound twice a day, in the morning and evening. From the results of the intervention, it was found that the majority of respondents experienced good perineal wound healing. This is in line with Safitri's research (2020), which showed that a number of 15 postpartum mothers (88.2%) experienced faster perineal wound healing after being given binahong gel on the fifth day.

The researcher's assumption is that the administration of bidara leaf extract antibacterial gel episiotomy wound supports wound healing by forming new tissue and the wound becomes dry quickly. This is because the antibacterial gel of bidara leaf extract contains phytochemicals such as flavonoids, saponins, ascorbic acid and oleanolic acid which have a higher effect on anti-inflammatory, antimicrobial and antioxidant mechanisms than without the antibacterial gel of bidara leaf extract.

3.2.3. The Effect of Using Antibacterial Gel Bidara Leaf Extract on Episiotomy Wound Healing in RSUD HAMS Kisaran

Based on the results of data analysis, it is known that episiotomy wound healing after being given antibacterial gel of bidara leaf extract was better than before treatment. Prior to treatment, episiotomy wound healing was still moderate with a median episiotomy wound healing score of 5 (moderate). Meanwhile, after being given antibacterial gel treatment of bidara leaf extract, the median episiotomy wound healing score decreased to 3 in the good category.

Based on the results of statistical tests using *Wilcoxon test*it is known that the p value (0.005) < (0.05) means Ho is rejected, so there are differences in episiotomy wound healing before and after the use of antibacterial gel of bidara leaf extract. These results prove that there is a significant effect of using antibacterial gel of bidara leaf extract on episiotomy wound healing at RSUD HAMS Kisaran. These results prove that the use of antibacterial gel of bidara leaf extract is proven to accelerate episiotomy wound healing.

The process of wound healing occurs in the early stages of inflammation. In the inflammatory stage, there is destruction, diffusion, and denaturation of cells or agents that trigger cell damage. At the same time the formation of a repair process, the process of rebuilding damaged tissue or the process of restoring damaged tissue. The process can end well after the causative agent of cell damage is neutralized. During the repair process, the damaged tissue is replaced by the formation of new tissue in the original parenchymal cells by filling the damaged part with fibroblast tissue (scarring process).

This wound healing process is also related to external processes such as the administration of wound medicine. In this study, the wound medicine given was an antibacterial gel of bidara leaf

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extract. Based on experience, the content contained in bidara leaves has the potential as a wound healing drug because it has anti-bacterial, antiviral, antiseptic properties and also functions in cell regeneration and repair. Alkaloid compounds have analgesic functions and saponin compounds also stimulate collagen growth in the wound healing process and stimulate the formation of new cells and have a pain-relieving effect and have antipyretic activity that is useful as a fever medicine (Nugrahawati F, 2016).

Bidara leaf extract is effective in healing episiotomy wounds because of the compounds contained in it such as terpenoids, flavonoids, alkaloids, saponins, tannins, kionone and steroids (Kusriani H., et al, 2015). Sharma, Gaur and Ganesh (2013) said that the bidara plant (ziziphus mauritiana) has health benefits, namely it is traditionally used as a tonic. The compounds contained in bidara leaves are effective in healing episiotomy wounds.

This is the same as what was stated by Rupina W., et al (2016) which stated that Terpenoids and Flavonoids are substances that have antimicrobial effects and are responsible for wound contraction and increasing the speed of epithelialization. Saponins act as antioxidants and antimicrobials, increase wound contraction and epithelialization speed, can damage the cytoplasmic membrane and kill bacteria. Saponins can also increase the ability of TGF- receptors found on fibroblasts to bind to TGF-β which is a growth factor needed by fibroblasts in synthesizing collagen. Meanwhile, tannins function as an astringent that can cause shrinkage of skin pores, stop exudate and light bleeding (Anief, 1997 in Wijaya, Citraningtyas and Wehantouw, 2014) and Phenol functions as an antiseptic on wounds.

This study found that there was a very significant effect of using antibacterial gel of bidara leaf extract on episiotomy wound healing in postpartum women. This is in accordance with the statement of Gurwinder Kartika R (2017), in bidara leaf extract is very good for repairing the skin, giving excess stamina, smooth blood circulation, inflammation and coagulation can be overcome, restore weak conditions to be healthy, and can heal wounds.

Episiotomy wound care is very important considering the complications that result if the perineal wound is not treated properly. These complications include infection of the sutures, bladder infection, and prolonged wound healing time. Therefore, the use of antibacterial gel of bidara leaf extract is highly recommended for the healing process of episiotomy wounds to be faster and better.

4. Conclusions and suggestions

The conclusions of this study are as follows:

1. The description of episiotomy wound healing in postpartum women before being given antibacterial gel of bidara leaf extract to postpartum mothers at HAMS Hospital Kisaran was in the moderate category as many as 42 respondents (70.0%).
2. The description of episiotomy wound healing in postpartum women before being given antibacterial gel of bidara leaf extract at HAMS Hospital was mostly in the good category as many as 38 respondents (63.3%) and effective in the episiotomy wound healing process.
3. There was a significant effect of the use of antibacterial gel of bidara leaf extract on episiotomy wound healing at HAMS Hospital, with p value (0.005) < (0.05). The results showed that the use of antibacterial gel of bidara leaf extract was proven to be effective in accelerating episiotomy wound healing

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