

## Original Research Article

# Effectiveness of binahong decoction water (*Anredera cordifolia* (ten) steenis) for perineal wound healing at home delivery aesy grabag Magelang, Indonesia

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### ABSTRACT

**Background:** Puerperium period cause the changes for mother, both changes in physiological and psychological changes. One of the physiological changes that occur in women that their post-partum perineal laceration. The impact that occurs when wound healing is very unpleasant, like pain and fear to move, so it can cause many problems including uterus sub involution, lochea obstructed, and post-partum hemorrhage. Binahong leaves (*Anredera cordifolia* (Ten) Steenis) is one of the herbs that can be used as a wound healing with various preparations. This study aims to determine the effectiveness leaves binahong decoction water on perineum wound healing.

**Methods:** The design of this study is a quasi-experimental design with two post-test with control group. Sample of this study is 44 post-partum mothers were divided into 2 groups, 22 people using binahong decoction water and 18 people using bethadine.

**Results:** There is a significant difference perineal wound healing after given intervention binahong decoction water and bethadine. The percentage of respondents who experienced a perineal wound healing in binahong decoction water group better than bethadine group.

**Conclusions:** Binahong decoction water very good for revitalizing the skin, giving extra stamina, blood circulation, resolve swelling and blood clots, restoring weak condition, and heal wounds. Binahong decoction water can be used as alternative technique to for perineum wound healing.

**Keywords:** Binahong decoction water, Perineum wound healing

### INTRODUCTION

Puerperal period is a period after birth, where there is a variety of changes in both physiological and psychological. If the mother is not able to adapt to the changes, it will cause a problem for mothers.<sup>1</sup> One of the physiological changes that occur in women was post-partum perineal laceration. The perineal laceration is a wound in the muscular between the vaginal introitus and anus was caused by a tear of childbirth. In other circumstances, lacerations can be caused by a difficult birth with forceps, breech extraction, or contraction of the

pelvic outlet that push the head towards the posterior.<sup>2</sup> The cases of it in 2009 around the world has 2.7 million people. This description is expected to reach 6.3 million by 2050. The prevalency of perineum laceration related with parity.<sup>3</sup> Complications perineal tears one of which is delayed wound healing and infection. The impact that occurs when wound healing is hampered very unpleasant mother like pain and fear to move, so it can cause many problems including sub involution of the uterus, spending lochea is not smooth, and bleeding post-partum which is the first cause of maternal mortality in Indonesia.<sup>4</sup> Perineal wound care general is use of povidone iodine.

Povidone-iodine is a chemical complex of povidone and the element iodine. It contains from 9% to 12% available iodine.

It works by releasing iodine which results in the death of a range of microorganisms.<sup>5</sup> Side effects include skin irritation. If used on large wounds kidney problems, high blood sodium, and metabolic acidosis may occur.<sup>6</sup> The existence of side effects from use betadine, makes researchers interested in studying non farmaka therapy for perineal wound healing, use binahong decoction leaf water Binahong contains some chemical constituents: flavonoid, oleanolik acid, protein, saponins, and ascorbic acid. The content of ascorbic acid in plants is important to activate enzymes that support prolil hodroksilasi stage hydroxylation in collagen formation, so as to accelerate the process of wound healing.<sup>7</sup>

## METHODS

This research uses experimental research design, which is a way to find a causal relationship between the two factors is intentionally inflicted by the researchers by eliminating or reducing other factors that interfere. Experiments are always done with the intent to see the effects of a treatment.<sup>8</sup>

This study was divided into two groups: the control group and the intervention group. The control group was given bethadine, while the intervention group was given binahong water decoction. The design of the study is a quasi-experimental design with two post-test with control group design. Population in this research was mothers spontaneous post-partum with perineal rupture in the maternity hospital "Aesya" Grabag Magelang.

Sample is a part of the population.<sup>9</sup> The sample used in this study were post-partum spontaneous mothers with perineal stitching as many as 44 respondents, which are

divided into two groups. The intervention group number of 22 people, and a control group of 22 people. The sample in this study conducted by random sampling, where all respondents who meet the criteria for inclusion and exclusion of research given paper lottery already written the types of interventions will be provided, and all respondents have the same opportunity as criteria: maternal post-partum spontaneous with hecting perineal 3-7 days whos have perineal laceration degree 1,2, and 3.

The dependent variables in this study is the perineal wound healing, and the independent variable in this study is the binahong leaves water decoction and bethadine. Binahong leaves that used was old leaves (dark green as much as 50 grams, then it was washed using water flow. Preparations will be made is the infusion preparations, in particular by decocting the binahong leaves in boiling water for 15 minutes.

Boiling is done by using a clay, in order not to damage the substances, and it closed during the boiling process. The amount of water used to boil water which is 4 cups (800 ml) were boiled for 15 minutes until the remaining 2 cups boiling water (400 ml). The water is allowed until the temperature reaches 35-40°C (lukewarm), then filtered so that only the remaining water only, and are used to clean the perineal area. Binahong water decoction has been used once only. It used to flush the perineal every morning and afternoon from front area toward the back. Perineal area that wascleaned, then dried using a small towel with the way in tap-tap lightly, and not rubbed on the perineal, to avoid damage it. This intervention is done from day 2 to day 7 post-partum.

## RESULTS

Univariate analysis aimed to describe the characteristics of respondents by age, employment, and parity status the intervention group and the control group.

**Table 1: Responded characteristic**

Variable	Binahong Group				Bethadine Group				P Value
	Mean	SD	Amount	%	Mean	SD	Amount	%	
Age	23.6	4.97			24.7	5.28			0.385
<b>Employment</b>									
Housewife			19	86.4%			21	95.5%	0.088
Other			3	13.6%			1	4.5%	
<b>Parity status</b>									
Primipara			10	45.5%			9		0.263
Multipara			12	54.5%			13	59.1%	

Based on Table 2, it showed that respondents were given binahong decoction water, their perineal wound healing medium category numbered 2 (9.1%) and wound healing perineal good categories numbered 20 people (90.9%).

Respondents were given bethadine, their wound healing perineal medium category numbered 12 (54.5%) and wound healing good categories of 10 people (45.5%) with p value = 0.021. It's mean that there were

differences in wound healing of the perineal were significant after being given the intervention of binahong decoction and bethadine. The percentage of respondents

who experienced a perineal wound healing in group binahong, better than bethadine group.

***Bivariate analysis describes the perineum wound healing in the intervention group and the control group***

**Table 2: Bivariate analysis.**

Evaluated perineal wound healing					
REEDA	Binahong Group		Bethadine Group		P value
	Amount	%	Amount	%	
Moderate (3-5)	2	9.1	12	54.5	0.021
Good (0-2)	20	90.9	10	45.5	

## DISCUSSION

The results showed that there was a significant difference in wound healing of the perineal after a given intervention binahong decoction water, with a p value of 0.021. The binahong decoction water more effective for wound healing perineal rupture at post-partum mothers, compared with bethadine. wound its lost/disconnection of tissue continuity.<sup>10</sup> Wound is a breakdown of unity or network components, which can cause tissue damage or lost the part of body. Healing wounds on the skin described the principles of improvement for most tissues of the body on a superficial wound. Perineal laceration is an injury that occurs during childbirth that occur in the perineal, the area located between the anus and vagina. Many factors affect the wound healing of the perineal include early mobilization, vulva hygiene, extensive injuries, age, vascularity, stressors, and nutrition. Wound to be cured if within one week of wounds dry conditions, covered injury tissue, and no signs of infection.<sup>11</sup>

It can caused by damage to tissue naturally because of the insistence of the fetal head or the shoulder at the time of delivery or episiotomy<sup>12</sup>. The rupture of membrane can cause bleeding, therefore need to do perineal stitches. Quality stitches perineal showed to be good if there are no signs of infection that is red, swollen, hot, pain and fungsiolaesa. Factors affecting the perineal wound from the outside environment is: traditions, knowledge, socio-economic, handling personnel, maternal conditions and nutritional. The internal factors are age, network management, hemorrhage, hypovolemia, nutritional deficits, personal hygiene, oxygen deficit, medications, and excessive activity.<sup>13</sup>

Perineal wound care is essential to accelerate the healing process. The goal of treatment is to prevent infection perineal with respect to tissue healing.<sup>14</sup> The signs of infection post-partum there are two kinds: local infections and secondary infections. Signs of local infection are: swelling of the wound, prulent discharge, discoloration local, pus mixed lochea expenditure, mobilization is limited due to pain, and rising the body temperature. Common infection characterized by pain and weakness, a

temperature increase of more than 39<sup>0</sup>C, decreased blood pressure, increased pulse rate, respiration increases and tightness, occurring disorders uterine involution, lochea smell and release pus.<sup>15</sup> The scope of perineal care is to prevent contamination of the rectum, handle gently on the affected tissues trauma and clean up all the output which is the source of bacteria and odor.<sup>14</sup> The tool used was a bottle or shower basin, warm water and clean towels. While the materials used are warm water, a new towel and antiseptic.<sup>16</sup> There is the relationship between the perineal wound care with the course of wound healing.<sup>17</sup>

Perineum infection in perineal wounds can be studied using the Redness, Echymosis, Edema, Discharge and Approximation (REEDA). This assessment tool used to assess the condition of the perineal stitches, with particular score, which indicates how well the condition of the wound healing of the perineal. Highest scores for each aspect of these 5 aspects (REEDA) is 3, while the lowest score is 0. The interpretation of the score there are four categories as follows: score of 0-2 means that the conditions of the perineal wound well, score 3-5 means that the conditions of perineal wound in a state of being, a score of 6-8 means that the perineal wound conditions are unhealthy, while the score of 9-15 means that the condition of perineal wound in bad condition. Based on the score above, it can be explained that the higher the score ratings REEDA, meaning that the condition of the lceration of perineal increasingly not good.<sup>18</sup>

Perineal wound healing was influenced by several factors such as nutrition, heredity, mother's ability to provide perineal care, culture and beliefs<sup>19</sup>. Perineal wound treatment exactly will help the healing process of it in quick time. One way perineal wound care is done using traditional ingredients bihahong as a means of accelerating wound healing perineal sutures, was used as an external medicine. Bihahong content had been studied from previous research. However, based on the benefits and pharmacological effects if consumed, binahong suspected of antioxidants and anti-virus is quite high. Each plant will produce a variety of chemical compounds for specific purposes. These compounds called secondary metabolites.<sup>20</sup>

Based on research, binahong was very good for revitalizing the skin, giving extra stamina, blood circulation, prevent stroke, and gout. Besides that, binahong able to enhance male vitality, overcome swelling and blood clots, restoring weak condition, and heal wounds. Therefore, binahong was used for various injuries, including perineum laceration. The ethanol extract of binahong leaves able cure wounds better than povidone iodine on rabbit skin.<sup>21</sup> The other study also supported stated that the application binahong leaf paste topically showed better results in the process of wound healing compared with Na Cl 0.9% and 5% povidone iodine on the skin of mice, so that it can be used as an alternative in wound healing in home.<sup>22</sup> Binahong leaves extract can accelerate healing on white mice wounded at an effective dose concentration of 30%, compared with povidone iodine.<sup>23</sup> Another study stated that consuming binahong decoction water was take effect of perineal wound healing in the postpartum mothers.<sup>24</sup> From the previous study, phytochemical test showed that the binahong leaves extract contains active compounds positive saponins, flavonoids, steroids, terpenoids, phenols, and alkaloids.<sup>25</sup>

Polyphenols and saponins function as an anti-bacterial.<sup>26</sup> The ethanol extract of leaves binahong also have antioxidant capacity.<sup>27</sup> Giving binahong leaves on wounds accelerate to healing the wounds with granulation tissue formation and reepitalisasi happen faster than comparable wounds were not given leaf binahong.<sup>28</sup>

Saponin glycosides are compounds triterpenoida or steroid glycosides which are surface active compounds. It were just as soap and can be detected by their ability to form foam. The pattern of saponin glycosides are kompleks, many saponins which has up to five sugar units and components common ones are glucuronic acid. Binahong also have high compound of flavonoid from leaves, stems, tubers, and flowers.<sup>29</sup>

Based on their chemical structure, saponins can be classified into three main classes, namely class steroid, steroid alkaloid class, and class triterpenoids.<sup>30</sup> Based on research, binahong was very good for revitalizing the skin, giving extra stamina, blood circulation, resolve swelling and blood clots, restoring weak condition, and heal wounds, include use for burns.<sup>31</sup> The lubrication leaf extract binahong ethanol concentrate 10% gives better results in the wound healing process compare with ethanol fraction concentration 5% for the primary healing, but not better than control (fresh binahong).<sup>32</sup>

Binahong leaves good to cure burns due to saponins. Saponin is antibacterial so fitting as wound cleansing. Additionally, saponins binahong also stimulate the formation of collagen, a protein that plays a role in wound healing.<sup>33</sup> The experimented with screening compound saponin, the result is that the saponin give better results as an antibacterial when using polar

solvents such as ethanol 70%. Binahong extract ethanol with hidrogel very effective for wound healing without irritation.<sup>34</sup> In addition, binahong also contains ascorbic acid (vitamin c), in which the acid can increase body resistance to infection and serves as a mucous membrane.<sup>35</sup> Giving Zn and Vitamin C affects the speed of wound healing after surgery.<sup>36</sup> Ascorbic acid is essential to activate enzymes that support prolil hydroxylase hydroxylase stage in the formation of collagen. With the presence of ascorbic acid is then formed collagen fibers will be more robust and accelerate wound healing.<sup>37</sup>

Binahong extract also contains polifenol, alkaloid, and flavonoid.<sup>38</sup> Binahong plant, importance of the distribution of determination of saponins compound from plant, has a potential to treatment for several diseases.<sup>39</sup> Flavonoid has direct roes as antibiotic function have a broad-spectrum target Saponin potential as ointment hydrocarbon to shape of first collagen, there is protein have a roe in recovery process of wound healing.<sup>40,41</sup>

Deposits of collagen in the injured cells is essential for wound healing phase. After nearly two weeks, the cell matrix formation and tissue remodelling is generally complete, even though this process can take several months.<sup>42</sup>

## CONCLUSION

Researchers say a lot of thank you to all those who have helped this research process. They are: the rector of University of Muhammadiyah Magelang, LP3M of University of Muhammadiyah Magelang, who has facilitated the funding, dean of the faculty of health sciences University of Muhammadiyah Magelang in terms of support, home of delivery Aesya who has given contribution and coopertion. And I also say thank to the all respondents, who were participate and contribute this research.

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