

An Experimental Study To Evaluate The Effectiveness Of Aloe vera Gel Application On Episiotomy Wound Healing Among Mothers In Early Puerperal Period Of Selected Maternity Hospitals, Jaipur, Rajasthan

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Abstract: An experimental study was conducted to evaluate the effectiveness of aloe vera gel application on episiotomy wound healing among mothers in early puerperal period of selected maternity hospitals, Jaipur, Rajasthan. Aim: The aim of the study was to evaluate the effectiveness of aloe vera gel application on episiotomy wound healing among mothers in early puerperal period.

Materials and methods: A quasi experimental non- randomized control group design. The study was carried out in postnatal wards of NIMS hospital and Rajnish hospital, Jaipur. 60 early puerperal mothers (30 for experimental group and 30 for control group) selected for the study with the help of purposive sampling technique. The early puerperal mothers in experimental group received Aloe vera gel application and early puerperal mothers in control group received hospital routine care on episiotomy. The data collection was done with the help of demographic proforma, Universal pain assessment scale and redness, edema, ecchymosis, discharge and approximation scale (REEDA) which investigated the episiotomy healing before and three days after intervention in both experimental and control groups. The statistical method for the demographic variables was presented by using frequencies and percentages. Mean, Standard Deviation and Hedge's G was used to evaluate the effect of aloe vera gel application on episiotomy wound healing of early puerperal mothers. The comparison of episiotomy wound healing in control group and experimental group was analyzed by paired 't' test. Chi square test and P value was used to find out the association between the healing score of episiotomy wound and selected demographic variables of the samples.

Results: The study result showed that in experimental group the mean post-test (4.9) was lower than mean pre-test (7.1) which showed that there was significant difference between the mean pre-test and mean post-test of experimental group whereas the mean in experimental group (5.03) was lower than mean in control group (6.5). Calculated p value is .000045 (P<0.05) which showed the significant difference between control group episiotomy wound healing and experimental group episiotomy wound healing. Calculated Hedge's G is 1.09 which showed that aloe vera gel application cause large effect on episiotomy wound healing, which can be observed easily.

Conclusion: According to the results, using Aloe vera gel considerably increases the speed of episiotomy wound healing, which revealed that aloe vera gel application was one of the important and effectiveness intervention in improving episiotomy wound healing in early puerperal mothers.

Keywords: Effectiveness, Aloe vera gel, REEDA, Episiotomy wound healing, Early puerperal Mothers

1. Introduction

A women's experience special events in her life that's call Pregnancy and child birth. Mothers suffer much distress after child birth due to painful delivery that affect the perineum. Perineal pain is most commonly associated with child birth by vaginal delivery. Episiotomy is a small surgical procedure performed during the second stage of labour, the first performance of episiotomy was done in 1742. Episiotomy is characterized by greater blood loss in conjunction with delivery, and there is a risk of improper wound healing and increased pain during early puerperium. Episiotomy is a small surgical procedure performed during the second stage of labour.^{1,2}

In a study it is found that treating with Aloe vera gel to skin irritation due to scratches, burns, cuts, insect bites and rashes, was nine days faster than without any treatment. The properties of Aloe vera gel that can speed healing by reducing pain and inflammation. Aloe vera contains 18 kinds of amino acids, carbohydrates, fats, water, vitamins, minerals, enzymes, hormones, and drug classes such as antibiotics, antiseptic, antibacterial, anti cancer, antiviral, anti fungi, anti infective and anti-inflammatory. Anti-bacterial substances and anti-fungal substances can increase blood flow to the injured area and can stimulate fibroblasts, skin cells responsible for wound healing.^{3,4}

Need for the study

Studies about the episiotomy rates around the world showed that this surgery ranged from 9.7% (Western Europe – Sweden) to 96.2% (South Africa – Ecuador) with lowest episiotomy rates in English – speaking countries (North America- Canada and United States) and it remained high in many countries (central south-America like Brazil: 94.2%, South Africa – 63.3% and Asia like China 82%)³. In India, in 2010 the overall rate of episiotomy was 40.6%. Among these midwives performed episiotomies at a lower rate (21.4%) than faculty (33.3%) and private providers (55.6%).⁵

Episiotomy rates vary widely worldwide, depending on the procedure is used restrictively / routinely. The worldwide episiotomy rate was 27%-54% are nulliparous and 6% are multiparous women (WHO 2003). Rates vary from 8% in the Netherlands, 13% in England to 25% in the USA. In India the birth rate is very high, 56% of women had an episiotomy compared to the 46% of white women. The difference between these percentage (10%) is measure of the excess frequency of episiotomy in Indian women.⁶

As per the number of researches and the personal experience of the researcher during her clinical posting found that episiotomy care in many hospitals involves several practices such as perineal wash, hot and cold application, sitz bath, application of infrared lamp, antibiotics to relieve pain and discomfort and to promote faster wound healing. An aloe vera is one of the oldest herbal medicine, that is used to heal wound and various skin conditions. Hence the researcher is interested to conduct the study on effectiveness of 'Aloe vera' gel healing of episiotomy wound.

Objectives

1. To assess the episiotomy wound healing score before application of aloe vera gel among mother in early puerperal period in experimental and control group.
2. To evaluate the effectiveness of aloe vera gel application on episiotomy wound healing among mothers in early puerperal period in experimental group.
3. To compare the score of episiotomy wound healing among mothers in early puerperal period in experimental and control group.
4. To find out the association between the score of episiotomy wound healing with selected demographic variables of samples.

Hypothesis

H₀₁. There will be no significant difference in episiotomy wound healing after aloe vera gel application in the experimental group and control group at 0.05 level of significance.

H₀₂: There will be no significant association between score of episiotomy wound healing with selected demographic variables of samples at 0.05 level of significance.

Conceptual framework

The study is based on Imogen King's goal attainment theory (1997) which would be relevant for aloe vera gel application on episiotomy wound. It is an open system, in this system human are in contact with their environment.

2. Methodology

- **Research approach**- A quantitative evaluative research approach was used pre-assessment and post assessment was adopted for this study in order to accomplish the objectives.
- **Research design**- The research design used in this study was non- randomized control group design of basic experimental design which comes under Quasi experimental design.
- **Independent variables**- In this study aloe vera gel application was the independent variables
- **Dependent variables**- In this study episiotomy wound healing of mothers in early puerperal period was the dependent variables.
- **Research setting**- The study was conducted in NIMS Hospital and Rajnish Hospital, Jaipur.
- **Sample**- The sample consisted of all mothers in early puerperal period in NIMS Hospital and Rajnish Hospital, Jaipur.
- **Sample size**- The sample size was 60 early puerperal mothers (30 for experimental group and 30 for control group)
- **Sampling technique**- The Sampling Technique adopted for this study was purposive sampling.
- The statistical method for the demographic variables was presented by using frequencies and percentages. Mean, Standard Deviation and Hedge's G was used to evaluate the effect of aloe vera gel application on episiotomy wound healing of early puerperal mothers. The comparison of episiotomy wound healing in control group and experimental group was analyzed by paired 't' test. Chi square test and P value was used to find out the association between the healing score of episiotomy wound and selected demographic variables of the samples.

Tool

The tool was divided into three sections:

- Section A- Demographic proforma of early puerperal mothers.
- Section B- The scale used was a standardized REEDA scale (Davidson 1974) which consist five components namely Redness, Edema, Ecchymosis, Discharge, Approximation of wound edges.
- Section C- It consists of universal pain assessment scale, which consist of 4 parts- No pain, Mild pain, Moderate pain, Severe pain.

Content validity and reliability

Content validity was determined by experts from Nursing and Medical department of obstetrics and gynaecology. The reliability of REEDA assessment scale was calculated by Karl-Pearson's coefficient with test, re-test method was found highly reliable ($r=0.708$). This correlation coefficient value shows that tool is reliable for evaluating the effectiveness of aloe vera gel on healing of episiotomy wound among early puerperal mothers.

Ethical consideration- ethical approval was obtained from the institutional ethical committee of the NIMS, university and formal approval was obtained from the hospital authority. The samples were informed about the purpose of the research and assured of their right to refuse to participate in or to withdraw from the study at any stage. Written and oral consent of samples was obtained. Anonymity and confidentiality of samples data was assured.

Data collection process

Pre-test was conducted from early puerperal mother, who full fill the inclusion criteria, then intervention was administered for 5 days to early puerperal mothers. The post –test was conducted after 5th dayof intervention.

3. Results

Findings related to Frequency and percentagedistribution of socio demographic variables

Table No 1: Frequency and percentage distribution of demographic variables

Demographic variables	Control Group		Experimental Group	
	No.	%	No.	%
Age group				
Below 21	8	27	10	33
21-25	12	40	12	40
26-30	10	33	7	23
31 And Above	0	0	1	3
Parity				
Primipara	17	57	18	60
Secondary para	11	37	11	37
Multipara	2	7	1	3
Mode of delivery				
Normal delivery with episiotomy	26	87	23	77
Forceps delivery with episiotomy	3	10	4	13
Vaccum delivery with episiotomy	1	3	3	10
Type of episiotomy				
Midline	1	3	0	0
Mediolateral	26	87	28	93
J-Shape	0	0	0	0
Lateral	3	10	2	7
Birth weight				
<2.5kg	1	3	2	7
2.5kg-3.5kg	18	60	18	60

>3.5 Kg	11	37	10	33
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Finding related to comparison of mean and SD of episiotomy wound healing score in pre test and post test of experimental group

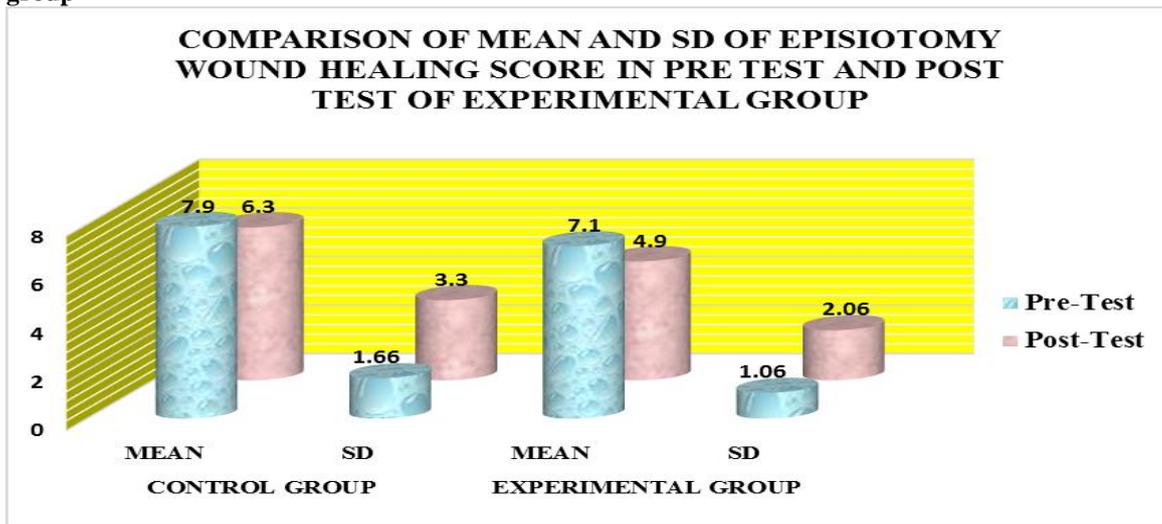


Fig No. 1: comparison of mean and SD of episiotomy wound healing score in pre test and post test of experimental group

Figure 1 shows that in experimental group the mean post-test (4.9) was lower than mean pre-test (7.1) which showed aloe vera gel is effective on episiotomy wound healing.

Findings related to Comparison of episiotomy wound healing in control group and experimental group

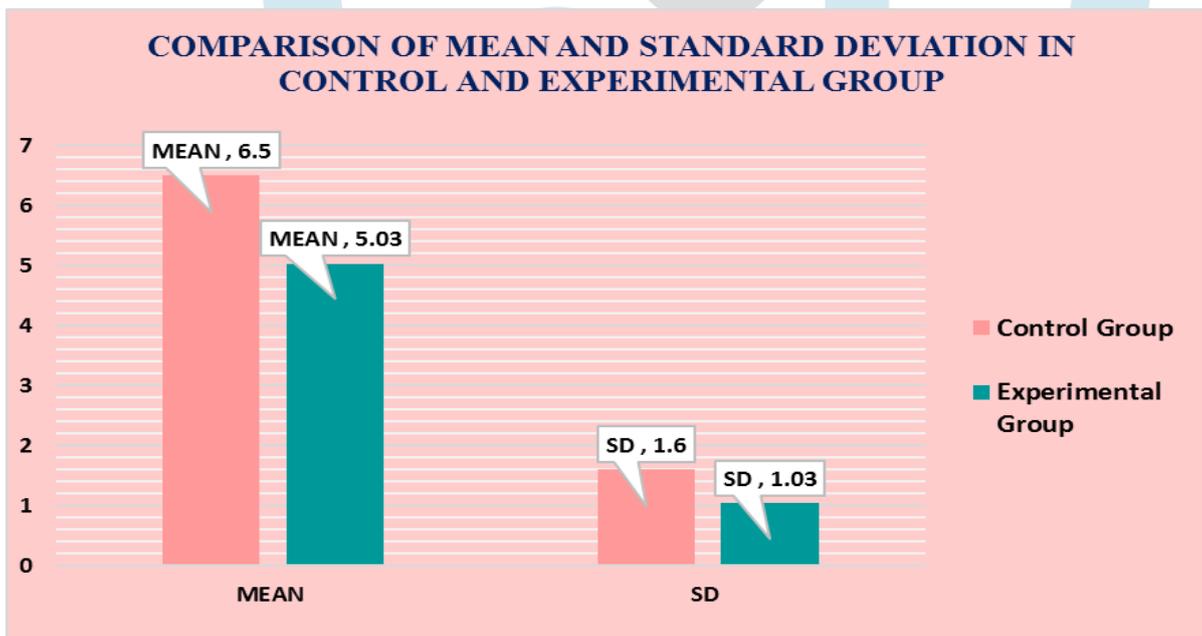


Fig No. 2: Comparison of episiotomy wound healing in control group and experimental group

Figure 2 shows that mean in experimental group (5.03) was lower than mean in control group (6.5). Calculated p value is .000045 ($P < 0.05$) which showed the significant difference between control group Episiotomy wound healing and experimental group Episiotomy wound healing. **Thus there was a significant difference in episiotomy wound healing after aloe vera gel application in the experimental group and control group as calculated p value is .00004 which is less than stabilized p value (0.05). Hence the stated Null hypothesis H01 was rejected and alternative hypothesis accepted.** Calculated Hedge's G is 1.09 which showed that aloe vera gel application cause large effect on Episiotomy wound healing which can be observed easily.

Findings related to aspect wise mean and standard deviation in control group and experimental group at post test level

Table No. 2: Statistical difference of mean and standard deviation in control group and experimental group at post test level

FACTOR	CONTROL GROUP		EXPERIMENTAL GROUP	
	MEAN	S.D	MEAN	S.D.
Redness	2.23	.62	2.03	.41
Edema	2.26	.44	2	.45
Ecchymosis	.76	.62	.93	.58
Discharge	.73	.69	.06	.25
Approximation	.53	.50	0	0

The table2 reveals that **Redness** mean in experimental group (2.03) was lower than mean in control group (2.23), which shows intervention is effective in reducing Redness. **Edema** mean in experimental group (2) was lower than mean in control group (2.26), which shows intervention is effective in reducing Edema. **Ecchymosis** mean in experimental group (0.93) was higher than mean in control group (0.76), which shows intervention is not effective in reducing Ecchymosis. **Discharge** mean in experimental group (0.06) was lower than mean in control group (0.73), which shows intervention is effective in reducing Discharge. **Approximation** mean in experimental group (0) was lower than mean in control group (0.53), which shows intervention is effective in improving Approximation. Overall which showed that intervention was effective on Episiotomy wound healing.

Association between demographic data and episiotomy wound healing score

The chi square analysis was done to find out association between the score of episiotomy wound healing with selected demographic variables. There was no significant association between “aloe vera gel” application on episiotomy wound healing among mothers in early puerperal period when compare to age ($p = .51$), parity ($p = .68$), mode of delivery ($p = .87$), type of episiotomy ($p = .96$) and birth weight ($p = .87$). **Thus there was no significant association between the score of episiotomy wound healing with selected demographic variables of samples as calculated p value is more than stabilized p value (0.05). Hence the stated Null H02 was accepted and alternative hypothesis was rejected.**

Discussion

In the study 25(83%) were in Control Group and 30(100%) were in Experimental group had average episiotomy wound healing score whereas 4(13%) were in Control Group and 0(0%) were in Experimental group had good episiotomy wound healing score. Remaining 1(3%) were in Control Group and 0(0%) were in Experimental group had poor wound healing, respectively.

In the Study 22(73%) were in Control Group and 18(60%) were in experimental group had moderate pain whereas 8(27%) were in Control Group and 12(40%) were in Experimental group had severe pain. Remaining 0(0%) in both Control and Experimental group had mild pain.

In **pre assessment**30(100%) were in Experimental group had average episiotomy wound healing score whereas in **post assessment** 27(90%) were in Experimental group had average wound healing score. In **pre assessment**0(0%) were in Experimental group had good episiotomy wound healing score whereas in **post assessment** 3(10%) were in Experimental group had good episiotomy wound healing score. In **pre assessment**0(0%) were in Experimental group had poor wound healing score whereas in **post assessment** and 0(0%) were in Experimental group had poor wound healing score.

The same study was found conducted on determining the impact of Aloe vera and Calendula on episiotomy healing in primi parous women. This clinical trial involves 111 qualified primi parous women admitted in Lolagar hospital. The women in experimental group used Aloe vera and Calendula Ointment every 8 hours and the control group used hospital routine on episiotomy for 5 days. According to the results, the mean of aloe vera group post-test (1.62) and calendula ointment group post test (1.67) was lower than mean of aloe vera group pre-test (4.32) and calendula ointment group pre test (4.40) and using Aloe vera and Calendula ointment considerably increased the speed of episiotomy wound healing so it can be used for quickening the episiotomy healing.⁷

This study showed that in experimental group, the mean post-test (4.9) was lower than mean pre-test (7.1) which showed aloe vera gel is effective on episiotomy wound healing.

The mean in experimental group (5.03) was lower than mean in control group (6.5). Calculated p value is .00004 ($P < 0.05$) which showed the significant difference between control group episiotomy wound healing and experimental group episiotomy wound healing. **Thus there was a significant difference in episiotomy wound healing after aloe vera gel application in the experimental group and control group as calculated p value is .00004 which is less then stabilized p value (0.05). Hence the stated Null hypothesis H01 was rejected and alternative hypothesis accepted.** Calculated Hedge’s G is 1.09 which showed that aloe vera gel application cause large effect on Episiotomy wound healing which can be observed easily.

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This study showed that the **Redness** mean in experimental group (2.03) was lower than mean in control group (2.23), which shows intervention is effective in reducing Redness. **Edema** mean in experimental group (2) was lower than mean in control group (2.26), which shows intervention is effective in reducing Edema. **Ecchymosis** mean in experimental group (0.93) was higher than mean in control group (0.76), which shows intervention is not effective in reducing Ecchymosis. **Discharge** mean in experimental group (0.06) was lower than mean in control group (0.73), which shows intervention is effective in reducing Discharge. **Approximation** mean in experimental group (0) was lower than mean in control group (0.53), which shows intervention is effective in improving Approximation. Overall which showed that intervention was effective on Episiotomy wound healing

Different studies have been done regarding the effect of herbal plants on episiotomy wound healing. study has been done for 5 days regarding the effect of Aloe vera and calendula ointment on episiotomy wound healing. The study showed that redness mean in aloe vera group (0.59) and calendula ointment (0.64) which is lower than the control group mean (1.10) which showed statistically significant difference. edema mean in aloe vera group (0.27) and calendula ointment (0.21) which is lower than the control group mean (0.64) which showed statistically significant difference. ecchymosis mean in aloe vera group (0.18) and calendula ointment (0.18) which is lower than the control group mean (0.59) which showed statistically significant difference. Meanwhile, none of the samples at the aloe vera group, calendula ointment group and control group has discharge at 5 days postpartum. approximation mean in aloe vera group (0.45) and calendula ointment (0.56) which is lower than the control group mean (0.86) which showed statistically significant difference.⁷

The chi square analysis was done to find out association between the score of episiotomy wound healing with selected demographic variables. There was no significant association between "aloe vera gel" application on episiotomy wound healing among mothers in early puerperal period when compare to age ($p = .51$), parity ($p = .68$), mode of delivery ($p = .87$), type of episiotomy ($p = .96$) and birth weight ($p = .87$). **Thus there was no significant association between the score of episiotomy wound healing with selected demographic variables of samples as calculated p value is more than stabilized p value (0.05). Hence the stated Null H_0 was accepted and alternative hypothesis was rejected.**

Contradicted study found "a descriptive study which was conducted to examine factors influencing episiotomy wound healing in Government Taluk Hospital, Kundapura". The study reveals that episiotomy wound healing is influenced by parity, frequency of self perineal care, length of episiotomy wound and no of episiotomy sutures present.⁸

Recommendations

- The similar study can be done with larger samples in different setting to strengthen the findings.
- A study can be conducted for assessing the effectiveness of aloe vera gel on wound healing after caesarean section.
- An analogous study can be conducted to assess the effectiveness of fresh aloe vera gel in combination with other complimentary therapies.
- A study to assess the effectiveness of structured teaching programme regarding aloe vera gel application over episiotomy wound for staff nurses in postnatal ward.
- A study to assess the effectiveness of planned teaching programme regarding aloe vera gel application over episiotomy wound for nursing students in postnatal ward.

Conclusion

According to the results, using Aloe vera gel considerably increases the speed of episiotomy wound healing, which revealed that aloe vera gel application was one of the important and effectiveness intervention in improving episiotomy wound healing in early puerperal mothers.

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