

## Effect of Infrared Lamp Therapy on Episiotomy Pain and Wound Healing

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**Conflicts of Interest:** Nil

### Abstract

**Background:** Pregnancy brings profound physical and psychological changes, and episiotomy remains a common obstetric procedure, especially among primiparous women. Infrared lamp therapy (IFR) serves as an effective intervention for episiotomy wounds by enhancing circulation, reducing inflammation, promoting tissue repair, and alleviating perineal pain. Hence; we assessed the effectiveness of IFR therapy on episiotomy pain and wound healing among postnatal mothers.

**Materials & methods:** This study evaluated the effectiveness of infrared (IFR) therapy on episiotomy pain and wound healing among 40 postnatal mothers, divided equally into study and control groups. The study group received IFR therapy twice daily for three days in addition to routine care, while controls received standard treatment. Pain and wound healing were assessed daily using REEDA and Numeric Pain Rating Scales, and data were statistically analyzed using SPSS.

**Results:** Infrared therapy significantly reduced episiotomy pain and enhanced wound healing among postnatal mothers. Pain scores and REEDA parameters such as redness, ecchymosis, and discharge improved notably from Day 2 onward ( $p < 0.05$ ). Overall wound healing showed marked progress in the study group by Day 3, confirming the therapeutic efficacy of IFR therapy.

**Conclusion:** Infrared lamp therapy effectively alleviates episiotomy pain and enhances wound healing, making it a valuable adjunct to routine postnatal care. Integrating IFR therapy into standard hospital protocols can significantly improve recovery outcomes in postpartum women.

**Keywords:** Infrared Lamp Therapy, Episiotomy, Postnatal Mothers, Wound Healing, Perineal Pain, REEDA Scale.

### Introduction

Pregnancy represents one of the most profound and transformative phases in a woman’s life, filled with

hope, anticipation, and emotional as well as physical changes. During this period, the expectant mother experiences numerous physiological adaptations alongside psychological adjustments essential for nurturing new life.<sup>1,2</sup>

Among the various obstetric procedures performed during childbirth, episiotomy—a surgical incision made in the perineum to facilitate vaginal delivery—is one of the most commonly practiced interventions. In India, approximately 1,20,243 vaginal deliveries occur annually, with an estimated 63.4% of mothers undergoing episiotomy. The procedure is notably more frequent in primiparous women, who are about 8.8 times more likely to receive an episiotomy than multiparous women. Similarly, data from the American College of Obstetricians and Gynecologists (ACOG) indicate that nearly one in three women delivering vaginally undergo this procedure.<sup>3,4</sup>

However, episiotomy often leads to perineal pain, which can significantly hinder a mother's ability to carry out daily activities and affect her overall well-being during the postpartum period. The perineum is an exceptionally sensitive region composed of muscles and soft tissues that play a crucial role in urination, defecation, and sexual function.<sup>5, 6</sup> Interferential (IFR) therapy has emerged as a beneficial modality in the management of episiotomy-related discomfort. When applied to the perineal region, this therapy enhances local blood circulation, minimizes inflammation, accelerates tissue repair, and effectively reduces pain intensity, thereby promoting faster recovery and improving maternal comfort during the postpartum phase.<sup>7, 8</sup> Hence; we assessed the effectiveness of IFR therapy on episiotomy pain and wound healing among postnatal mothers.

## Materials & Methods

The current research was conducted for evaluated the effectiveness of IFR therapy on episiotomy pain and wound healing among postnatal mothers. 40 postnatal mothers were enrolled (20 each in study and control groups) and were selected through purposive sampling in the postnatal ward. The study group received infrared (IFR) therapy at 230 volts for 10 minutes twice daily at a distance of 45 cm from the episiotomy site for three consecutive days, along with routine perineal care, while the control group received standard hospital care. Post-intervention data were collected daily for three days using standardized tools: the REEDA scale to assess wound healing and the Numeric Pain Rating Scale to measure pain levels. The reliability of these scales ensured consistent evaluation of therapeutic outcomes between the groups. Pain and wound healing assessments were conducted each evening for both groups throughout the study period. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

## Results

Table 1 presents a comparison of mean pain scores between the study and control groups across three consecutive days following infrared (IFR) therapy. On Day 1, no significant difference was observed ( $p=0.332$ ), whereas by Day 2 and Day 3, the study group exhibited markedly lower pain scores ( $p<0.05$ ), indicating significant pain reduction due to IFR therapy. Table 2 details the comparative analysis of wound healing components between groups using the REEDA scale. Parameters such as redness, ecchymosis, and discharge showed statistically significant improvement in the study group from Day 2 onwards ( $p<0.05$ ), highlighting faster healing progression. Edema and approximation showed

no significant intergroup differences, suggesting gradual but comparable healing. Table 3 summarizes the overall wound healing scores, showing significant improvement in the study group by Day 2 ( $p=0.048$ ) and Day 3

( $p=0.001$ ). These findings confirm that infrared therapy effectively accelerates wound recovery and alleviates pain among postnatal mothers with episiotomy wounds.

Table 1: Comparison of Pain Level between Study and Control Groups after the Study Intervention

Days	Control Group	Study Group	p-value
Day 1	5.85	5.54	0.332
Day 2	4.86	3.17	0.018*
Day 3	3.13	1.28	0.021*

\*: Significant.

Table 2: Comparison of Components of Episiotomy Wound Healing Among Study and Control Groups after Intervention

Components	Group	Day 1	p-value	Day 2	p-value	Day 3	p-value
Redness	Study	2.00	0.397	1.67	0.192	0.73	0.006*
	Control	1.75		1.81		1.59	
Edema	Study	1.63	0.127	1.11	0.208	0.53	0.399
	Control	1.58		1.25		0.85	
Ecchymosis	Study	0.83	0.336	0.41	0.041*	0.23	0.000*
	Control	0.91		0.82		0.57	
Discharge	Study	0.63	0.872	0.35	0.019*	0.07	0.002*
	Control	0.72		0.67		0.42	
Approximation	Study	0.35	0.317	0.22	0.168	0.23	0.554
	Control	0.31		0.29		0.29	

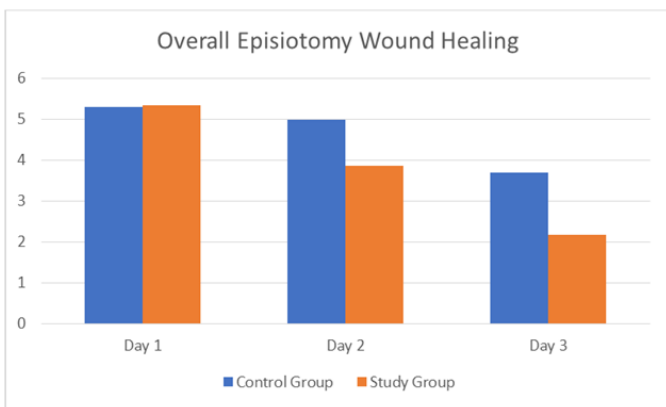
\*: Significant.

Table 3: Comparison of Overall Episiotomy Wound Healing Between Study and Control Groups after Intervention

Days	Control Group	Study Group	p-value
	Mean	Mean	p-value
Day 1	5.29	5.33	0.887
Day 2	4.97	3.85	0.048*
Day 3	3.69	2.17	0.001*

\*: Significant.

Graph 1: Comparison of Overall Episiotomy Wound Healing Between Study and Control Groups After Intervention



## Discussion

Episiotomy is a surgical incision made in the perineum during vaginal delivery to facilitate childbirth and prevent uncontrolled perineal tears. In women who do not undergo episiotomy, spontaneous lacerations often occur and require repair. Post-episiotomy pain is a common postpartum morbidity that can interfere with daily functioning, yet research on its optimal care remains limited. Traditionally, midwives have managed episiotomy and perineal wounds. During normal delivery, the perineum must stretch extensively to allow the baby's passage; when tissues cannot stretch adequately, tearing may occur. To prevent such complications, healthcare providers perform an episiotomy, especially in difficult or assisted deliveries such as forceps, vacuum, breech, or face presentations.<sup>8, 9</sup> Episiotomy is widely practiced because it minimizes irregular lacerations, facilitates easier repair, reduces the risk of brain injury to the newborn, and may lower the chance of uterine prolapse in later pregnancies. Earlier, moist heat methods such as sitz baths and hot packs were used for wound care. With technological advances, dry heat techniques like infrared rays, peri lamps, and electric heat devices have proven more beneficial, as they maintain wound dryness, promote faster healing, and provide longer-lasting pain relief.<sup>10-12</sup> Hence; we

assessed the effectiveness of IFR therapy on episiotomy pain and wound healing among postnatal mothers.

In the present study, the comparison of mean pain scores between the study and control groups over three consecutive days after infrared (IFR) therapy showed that both groups had similar pain levels on the first day ( $p=0.332$ ). However, by the second and third days, the study group demonstrated significantly lower pain scores ( $p<0.05$ ), reflecting a notable reduction in discomfort due to IFR therapy. Evaluation of wound healing using the REEDA scale revealed significant improvement in redness, ecchymosis, and discharge parameters in the study group from the second day onward ( $p<0.05$ ), indicating faster tissue recovery. Although edema and wound edge approximation did not show significant differences between the groups, both followed a gradual healing trend. Our results were in concordance with the results obtained by previous authors who also reported similar findings. In a previous study conducted by Shukla A et al, authors assessed the effectiveness of IFR therapy on episiotomy pain and wound healing among postnatal mothers. 60 postnatal mothers (30 in each study & control group) were included. The IFR therapy for 10 minutes was applied on episiotomy wound for 3 consecutive days twice a day for the study group whereas hospital routine care was given to control group. Episiotomy wound was assessed by using observational check list REEDA scale and pain level assessed by modified numeric pain rating scale once in a day for 3 consecutive days. The result shown that there was significant difference found in episiotomy pain on 2nd day ( $p < 0.001$ ) and in 3rd day ( $p < 0.001$ ), and on episiotomy wound healing on 2nd day ( $p = 0.05$ ) and on 3rd day ( $p = 0.001$ ) in between study and control group. The study concluded that, IFR therapy is an appropriate

method of care which can be included in hospital routine care for better episiotomy wound healing and managing episiotomy pain level among women at puerperium period.<sup>13</sup>

In the present study; overall REEDA scores improved significantly in the study group by Day 2 ( $p=0.048$ ) and Day 3 ( $p=0.001$ ), confirming that infrared therapy effectively enhances wound healing and reduces pain in postnatal mothers with episiotomy wounds. Baruah B et al, in a previous study, authors reported that the application of infrared radiation (lamp) effectively reduced pain experienced by postnatal mothers with episiotomy wounds. Statistical analysis using the paired *t*-test demonstrated a significant improvement in wound healing in the infrared therapy group compared to the control group. However, chi-square analysis indicated no significant association between wound healing outcomes and variables such as maternal age, parity, body weight, hemoglobin level, or the reason for performing the episiotomy.<sup>14</sup> Roma NZH et al, in another study, investigated the impact of dry heat on perineal pain and episiotomy wound healing in primiparous women. In a quasi-experimental study involving 100 participants, women received either dry heat via infrared light or moist heat through sitz baths twice daily for ten days. Results showed that dry heat significantly improved wound healing parameters and reduced pain intensity on the 5th and 10th days compared to moist heat, indicating that infrared therapy is more effective in promoting faster recovery and pain relief after episiotomy.<sup>15</sup> In a study by Salvi P et al., the authors assessed the effectiveness of adding infrared radiation to routine care for improving episiotomy wound healing in postnatal mothers. A total of 120 women were randomly assigned to two groups—Group A received routine care alone,

while Group B received routine care plus infrared therapy. Significant improvement was seen in the REEDA scale parameters—redness, edema, ecchymosis, discharge, and wound edge approximation—in the infrared group ( $p<0.05$ ). The study concluded that infrared radiation effectively promotes wound healing and reduces pain among postnatal mothers.<sup>16</sup>

### Conclusion

Infrared lamp therapy effectively alleviates episiotomy pain and enhances wound healing, making it a valuable adjunct to routine postnatal care. Integrating IFR therapy into standard hospital protocols can significantly improve recovery outcomes in postpartum women.

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