

# Interrupted Versus Subcutaneous Continuous Skin Suture in Episiotomy Repair in Indian Urban Women: A Study

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## Research Article

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## Abstract

**Introduction:** Episiotomy also known as perineotomy, is a surgical incision of the perineum and the posterior vaginal wall generally done by a midwife or obstetrician during second stage of labor to quickly enlarge the opening for the baby to pass through. The incision, which can be done at a 90 degree angle from the vulva towards the anus or at an angle from the posterior end of the vulva (medio-lateral episiotomy), is performed under local anesthetic (pudendal anesthesia), and is sutured after delivery. Its routine use is no longer recommended. Despite this it is one of the most common medical procedures performed on women. In the United States as of 2012 it was performed in 12% of vaginal births. Perineal pain is the most common complaint after episiotomy. It imposes extra pressure on mothers who attempt to adapt to their new conditions. Therefore, the present study was performed to compare pain severity and perineal repair in two skins suturing surgical technique in episiotomy repair methods.

**Methods:** In this clinical trial, 64 primiparous women who came to our hospital for delivery were randomly allocated into two groups of 32 to undergo either interrupted or subcutaneous continuous episiotomy repair. A visual analogue scale (VAS) was used to evaluate pain severity 12-18 hours after episiotomy repair and also 10 days after delivery. Perineal repair rate was also assessed using the REEDA (redness, edema, ecchymosis, discharge, and approximation) scoring scale. **Results:** Statistical tests did not show significant differences between the 2 groups in pain severity variations or REEDA scores at 12-18 hours and the 10th day after delivery.

**Conclusion:** The results of this study showed that pain severity and episiotomy repair rate were similar in the two methods. Further studies with a larger sample size are required.

**Keywords:** Pain; Episiotomy; Suture techniques; surgical techniques

## Introduction

Episiotomy is an incision of perineal body to prevent perineum injuries and facilitate and accelerate the second stage of labor. It is one of the most common surgical procedures on women whose prevalence differs in various geographical regions. Joseph Delee was the first person to suggest routine episiotomy for all primiparous women and most multiparous women. His suggestion influenced the science of midwifery for 60 years. Global prevalence of this surgery has been reported as 30-90% of all vaginal deliveries [1-4]. Having had a surgery in the perineum increases pain and discomfort and interferes with normal activities during postpartum recovery. It even influences the relation between the mother and the infant [5,6]. The application, place, time, and repair method of episiotomy are currently among the most discussed subjects of midwifery science [7]. Although there are various techniques to close the incision of episiotomy, hemostasis and restoration of anatomical structure of the incision site without additional suture are fundamental aspects of success in all methods. At present, two common methods of repair include subcutaneous continuous and interrupted methods [7]. In an Iranian study no significant difference was found [2] but in a European study, while 30% of the studied hospitals used interrupted sutures, 47% employed interrupted sutures to repair the muscles of perineum. However, there were no definite strategies in 23% of the hospitals [8]. Most researchers believe that using continuous sutures to repair vagina and perineum muscles and skin is less painful than the interrupted method [9]. A study in Turkey reported the continuous method to cause less pain at a short time after delivery and faster perineum repair. The method also economized consumption rate of the suture thread [10]. An English study randomly allocated 1542 women with second-degree perineal laceration or episiotomy into 2 groups to receive either continuous or interrupted methods of repair. Perineal pain was less in the continuous method group on the 2<sup>nd</sup> and 10<sup>th</sup> days and even until 12 months after delivery [8]. A similar study was conducted on 445 women with episiotomy and second-degree perineal laceration in Spain. Although no significant difference in pain rate was found between the two groups on the 2<sup>nd</sup>-10<sup>th</sup> days and 3 months after delivery, the continuous method required less thread and the suture ends repaired more quickly [6]. In delivery units of clinics, the difference in mothers' satisfaction rates after delivery with various methods of repair is implicitly observable. Despite the importance of finding

the best strategies to provide effective prenatal care and reduce postpartum complications, limited studies with contradictory results have been performed in this field.

On the other hand, maternal pain relief and helping mothers in taking appropriate care of their infants are completely essential according to the World Health Organization (WHO). We then tried to present the best method of episiotomy repair with the least complications for mothers.

## Materials and Methods

This study was a controlled randomized clinical trial. The sample size was 64 primiparous women who came to our hospital in urban Navi Mumbai for delivery who were randomly allocated into two groups of 32 each to undergo either interrupted or subcutaneous continuous episiotomy repair. Women were only included if they had no cardiovascular problems, diabetes, anemia, bleeding after delivery, and manual ejection of placenta. The subjects were randomly allocated into two groups of subcutaneous continuous skin suture repair method (n = 32) and interrupted repair method (n = 32). A standard visual analogue scale (VAS) was used to determine pain severity. Moreover, the wound healing was assessed by the standardized and valid REEDA (redness, edema, ecchymosis, discharge, and approximation) scoring scale. In all parturients, the area of episiotomy was numbed using 5 cc of lidocaine 2%. In both the groups vaginal mucosa and muscle were repaired with interrupted sutures with catgut 2-0. Afterwards, in one group, interrupted sutures were placed through the skin. In the other group, continuous sutures were used to close the skin with vicryl 2-0. The obstetric characteristics of mothers were recorded in a form using their documents and observations of the researcher. Pain severity and perineum repair rate were evaluated by the mentioned tools 12-18 hours after the repair (at least with a 4-hour interval from the last sedative) and on the 10<sup>th</sup> day after delivery. All subjects were prescribed with 10 ibuprofen 400 mg pills and were ordered to take one pill every 6 hours.

## Results

Most subjects were housewives and had elementary school education.

Variable	Continuous Group	Interrupted Group	df	t	p
<b>Pain Intensity</b>					
12-18 Hours after Delivery	3.14 (1.81)	2.90 (1.92)	98	6.72	0.61
The 10th Day after Delivery	0.71 (0.32)	0.74 (0.34)	98	6.69	0.82
Difference in Pain Intensity	2.40 (0.50)	2.13 (0.52)	98	1.2	0.21
<b>The Repair Rate (REEDA Score)</b>					
12-18 Hours after Delivery	6.09 (2.39)	6.73 (2.40)	98	1.5	0.11
The 10th Day after Delivery	1.3 (0.38)	1.70 (0.52)	98	1.02	0.34
Difference in REEDA Score	4.60 (1.1)	5.00 (0.86)	98	0.02	0.94
Required Time for Repair (minutes)	5.24 (0.73)	6.50 (0.93)	98	6.64	< 0.001
Number of Used Threads	1.04 (0.23)	1.90 (0.24)	98	15.3	< 0.001

Values are expressed as mean (SD).

Table 1: Pain intensity and the required time and threads for episiotomy repair in the continuous and interrupted repair groups (n = 62 in each group).

## Discussion

This research was performed in order to compare pain severity and repair rate of episiotomy site between continuous and interrupted skin repair methods in episiotomy site. Therefore, 64 eligible pregnant women were randomly allocated into two groups of 32 to undergo the continuous or interrupted methods of skin closure in episiotomy. All women were evaluated 12-18 hours after the repair and on the 10<sup>th</sup> day after delivery. In general, the results of this research showed that pain severity and rate of perineum repair were similar in the two repair methods of skin suturing in episiotomy (continuous and interrupted methods) during 12-18 hours and on the 10<sup>th</sup> day after delivery. Similarly, An Australian study by Valenzuela et al. evaluated pain severity and use of sedatives on 2<sup>nd</sup> and 10<sup>th</sup> days and 3 months after delivery in two groups with continuous and interrupted methods of episiotomy repair. It did not show a significant difference in pain severity between the two groups. 06 In England, Kettle et al. reported pain severity to be considerably less in continuous repair method until the 10<sup>th</sup> day. Although the difference was persistent until 12 months after delivery, it was not statistically significant. In another study, Kettle et al. suggested that the difference in pain could be caused by the increased of pressure on the sutures due to edema. While the pressure is distributed through the suture in the continuous method, the sutures are placed vertically on the wound in the interrupted method [11,12]. Sereshti, et al. [12] performed a double-blind clinical trial on 148 women who delivered in Shahrekord (a city in Iran). They compared continuous and standard repair methods in terms of repair time and the number of used threads and also pain severity and infection rates two hours and 40

days after delivery. In contrast to our study, they found significant differences between the 2 groups in pain severity, infection rates, repair time and the number of used threads. This inconsistency might have been caused by differences in sample size and time of pain determination [13]. Moreover, since the sutures are placed through the subcutaneous tissue in the continuous method, they do not stimulate nerve terminations of the skin. In contrast, interrupted sutures are placed on the skin [9]. In a Turkish study, Kokonali, et al. [10] showed the continuous repair method to result in significantly less severe pain than the interrupted method [10] which is in contrast with our results. This difference between the two studies could have been due to sample size, pain evaluation intervals, and mothers' parity. In fact, Kokonali, et al. [10] used a larger sample size and measured the severity of perineum pain during different activities at the first and 10<sup>th</sup> days postpartum and also during sexual intercourse 6 weeks after delivery using a VAS. Moreover, while we assessed primiparous women with episiotomy, Kokonali, et al. [10] evaluated second-degree laceration and episiotomy without considering the parity [10]. Although the repair methods can cause dyspareunia, we measured pain severity before the start of mothers' sexual activity. Hence, the complications of the selected type of repair method can be ignored probably. In the present study, the rates of episiotomy healing during 12-18 hours and on the 10<sup>th</sup> day after delivery were insignificantly different between the two groups with continuous and interrupted sutures. In Pakistan, Perveen & Shabbir [14] compared the methods and types of using threads in continuous and interrupted repair methods of episiotomy on the 10<sup>th</sup> day and the 6<sup>th</sup> week after delivery. Similar to our results, they failed to establish a significant difference in the rate of wound

healing [14]. Among the numerous factors which can affect perineal repair, the type of thread and the number of sutures seem to be the most effective. Since we used the same type of thread in both methods and only the number of sutures differed between the groups, no significant difference was detected between the two groups. Unfortunately, we could not find a study to prove this hypothesis. On the other hand, based on Cole's theory, episiotomy normally requires 2-3 weeks to heal [15]. However, we evaluated the mothers on the 10<sup>th</sup> day postpartum. In this study, the mean required time for episiotomy repair in the continuous and interrupted method groups were 5.34 and 6.54 minutes, respectively. Therefore, the required time for repairing in the continuous method was almost one minute less than the other method. Likewise, Valenzuela et al. reported the continuous method to require one minute less than the interrupted method [6]. Moreover, Kokonali, et al. estimated significantly less time to be required in the continuous method [10]. Valenzuela, et al. [6], Kettle, et al. [9] & Morano, et al. [16]. Reported similar results. One of the limitations of the present research is that pain is generally a mental phenomenon which can be influenced by different factors such as culture and socioeconomic status. It is thus not controllable in all conditions. We attempted to eliminate the confounding factor by randomized allocation of the subjects. Therefore, there were no statistically significant differences between the two groups such factors. It is however recommended to carry out a research under the same title to evaluate long-term pain and healing rate using the continuous and interrupted methods. The relation between the repair method and dyspareunia needs to be assessed as well [17,18].

## Conclusion

The findings of this research showed pain severity and rate of perineal repair to be similar in the continuous and interrupted repair methods of skin suturing in episiotomy.

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