

## Research Article

**Laceration Extension in Median and Mediolateral Episiotomy*****Perluasan Laserasi Episiotomi pada Episiotomi Mediana dan Mediolateral*****Bobby I Utama<sup>1</sup>, Junizaf<sup>2</sup>, Budi I Santoso<sup>2</sup>, Ermawati<sup>1</sup>, Surahman Hakim<sup>2</sup>**

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**Abstract**

**Objective:** To compare the laceration extension between median and mediolateral episiotomy in women with perineal body sized more than 2.5 cm.

**Method:** A single-blind RCT study was conducted on 104 women receiving median episiotomy and 104 women receiving mediolateral episiotomy at Dr. M. Djamil Hospital Padang and Reksodiwiryo Military Hospital Padang.

**Result:** There was no difference in laceration extension in both groups, but pain in the first 24 hours and pain after day 14 was higher on mediolateral group than the median group ( $p=0.005$  and  $p=0.008$ , respectively).

**Conclusion:** There is no difference in terms of laceration extension between median and mediolateral episiotomy, but the pain is higher in the mediolateral group.

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**Keywords:** laceration extension, median episiotomy, mediolateral episiotomy

**Abstrak**

**Tujuan:** Membandingkan perluasan laserasi episiotomi mediana dan mediolateral pada perempuan dengan badan perineum lebih dari 2,5 cm.

**Metode:** Penelitian single-blind RCT ini dilakukan terhadap 104 perempuan dengan episiotomi mediana dan 104 perempuan dengan episiotomi mediolateral di RS Dr. M. Djamil Padang dan RS Tentara Reksodiwiryo Padang.

**Hasil:** Tidak terdapat perbedaan perluasan laserasi pada kedua kelompok, namun nyeri 24 jam pertama dan 14 hari setelah persalinan pada kelompok mediolateral lebih tinggi dibandingkan kelompok mediana (masing-masing  $p=0,005$  dan  $p=0,008$ ).

**Kesimpulan:** Tidak terdapat perbedaan perluasan laserasi antara episiotomi mediana dan mediolateral, namun nyeri pada kelompok mediolateral lebih tinggi.

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**Kata kunci:** episiotomi mediana, episiotomi mediolateral, perluasan laserasi

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**INTRODUCTION**

Episiotomy is one of the most commonly performed procedures in obstetrics. In 2000, approximately 33% of women giving birth had an episiotomy. Historically, the purpose of this procedure was to facilitate completion of the second stage of labor to improve both maternal and neonatal outcomes. Maternal benefits are thought to include reduced risk of perineal trauma, subsequent pelvic floor dysfunction and prolapse, urinary and fecal incontinence, as well as creating better sexual function. On the other hand, the fetal benefits are to shorten the second stage of labor resulting in more rapid spontaneous delivery or from instrument-assisted vaginal delivery.<sup>1-5</sup>

The two most common types of episiotomy are the midline or median episiotomy and the mediolateral episiotomy. In the U.S., midline episiotomy is more common, since it is easier to conduct and reconstruct. This type is also results in less pain and long-term tenderness or problems after delivery compared to mediolateral episiotomy. Unfortunately, midline episiotomy has some disadvantages, which is the increased likelihood for this type of incision to extend and involve the anal sphincter or lining of the rectum. Meanwhile, mediolateral episiotomies are more common in other parts of the world, since it can extend the perineal space for delivery with a lower risk of extension leading to third and fourth grade rupture. Unfortu-

nately, it has been reported that mediolateral episiotomy is hard to reconstruct and may lead to increased blood-loss, pain, and increased risk of long-term discomfort, especially intercourse problems and urinary retention after birth.<sup>6-11</sup>

Although episiotomy is a very common procedure, the use of episiotomy is not recommended because more recent studies have found that routine use of episiotomy does not have significant benefits for the health of mother or baby if compared to selective or restrictive application. Thus, it is not recommended to perform routine episiotomy.<sup>1,5,8,9</sup> Episiotomy is only recommended on instrument-assisted vaginal delivery, preterm delivery, breech presentation (bottom or feet first), macrosomia, fetal distress, shoulder dystocia or when there is a risk of further extension of perineal laceration.<sup>7,8</sup>

Nowadays, the episiotomy technique commonly used at Dr. M. Djamil Hospital in Padang is mediolateral episiotomy. Despite its tendency to cause more pain, blood loss and long-term discomfort, as well as the relative difficulty to reconstruct, it has a lower risk for extension of perineal rupture.

There have been many studies conducted worldwide related to the outcomes of midline episiotomy and mediolateral episiotomy, although they mostly do not compare the two types of episiotomy. The evaluation of episiotomy outcomes for both mediolateral and midline is still lacking. There are only two published trials addressing this question, both of which have been shown to have poor methodological quality.<sup>3,6,7</sup> Studies with good design related to the comparison midline episiotomy outcomes and medio lateral episiotomy outcomes is still needed. Thus, we aim to compare the outcomes of midline and mediolateral episiotomy, especially in regards of laceration extension.

## METHOD

The study is conducted in the Obstetrics and Gynecology Department, Faculty of Medicine, University of Andalas/Dr. M. Djamil Hospital Padang and Reksodiwiryo Military Hospital Padang from November 2010 to July 2011. This research is a single-blind randomized clinical trial.

The population of this research is all patients who experienced labor and delivery in Dr. M. Djamil Hospital and Reksodiwiryo Military Hospital in Padang. Sample is taken from the population

meeting the inclusion and exclusion criteria. The inclusion criteria are primiparous, perineal length  $\geq 2.5$  cm, having indications for episiotomy (breech presentation, perineal laceration risks, and premature fetus), willing to participate in this research, no history of urinary incontinence or defecation disorders before pregnancy, and no history of vaginal or rectal surgery. The exclusion criteria include epidural analgesia during labor, termination of labor by cesarean section, and operative obstetrics procedure such as vacuum and forceps extraction. The recruited subjects were then assigned into two groups by random sampling technique.

The data is recorded in the research form and analyzed using Statistical Package for the Social Sciences (SPSS) software version 16.0 for Windows™.

Bivariate analysis is used to determine the relationship between method of episiotomy and occurrence of laceration extension. Statistical analysis was performed using Kolmogorov-Smirnov test for categorical data and student t-test for continuous data with 95% confidence intervals.

## RESULT

We carried out a single-blind randomized clinical trial of the laceration extensions that occurred in patients receiving median and mediolateral episiotomy in the Department of Obstetrics and Gynecology, General Hospital Dr. M. Djamil/Faculty of Medicine, University of Andalas Padang and Reksodiwiryo Military Hospital Padang, from December 2010 to July 2011. We included 208 study participants consisting of 104 subjects in the median episiotomy group and 104 subjects in the mediolateral episiotomy group.

The mean perineal length in the median group is  $2.95 \pm 0.27$  cm and  $2.98 \pm 0.31$  cm in the mediolateral group. The mean birth weight was  $3096.54 \pm 252.27$  grams in the median episiotomy group and  $3102 \pm 303.53$  grams in the mediolateral episiotomy group. In terms of age, it was found that the mean age was  $25.35 \pm 5.37$  years old in the median group and  $25.90 \pm 4.60$  years old in the mediolateral group. No statistically significant differences were found in terms of baseline characteristics between both groups.

Based on our results, no urinary retention or fecal incontinence was identified in either group.

**Table 1.** The Relationship Between Episiotomy Method and Incidence of Perineal Pain Within the First 24 Hours After Delivery

Episiotomy	Perineal pain in the first 24 hours					
	Mild		Moderate		Severe	
	n	%	n	%	n	%
Median	30	28.8	73	70.2	1	1.0
Mediolateral	5	4.8	73	70.2	26	25.0

Kolmogorov-Smirnov test,  $p = 0.005$

**Table 2.** Relationship Between Episiotomy Types and the Incidence of Perineal Pain in the First 14 Days After Delivery

Episiotomy	Perineal pain within 14 days					
	Mild		Moderate		Severe	
	n	%	n	%	n	%
Median	104	100	0	0	0	0
Mediolateral	80	76.9	24	23.1	0	0

Kolmogorov-Smirnov test,  $p = 0.008$

The highest proportion of pain in the first 24 hours after delivery is similar in both groups, which were complaints of moderate pain in the median and mediolateral episiotomy groups, consisting of 73 cases (70.2%) in both groups. However, the incidence of severe pain in mediolateral

episiotomy is higher in the midline episiotomy group with 26 cases (25%), compared to only 1 case (1%) in the median episiotomy group. After testing with Kolmogorov-Smirnov, a significant difference was found in the degree of pain in both groups.

**Table 3.** Relationship Between Episiotomy Types and degree of Perineal Laceration

Episiotomy	Degree Laceration									
	II		IIIa		IIIb		IIIc		IV	
	n	%	n	%	n	%	n	%	n	%
Median	87	83.6	14	13.5	2	1.9	1	1.0	0	0
Mediolateral	94	90.4	10	9.6	0	0	0	0	0	0

Kolmogorov-Smirnov test,  $p = 0.973$

At 14 days post-partum, all the subjects in the median episiotomy group only complained of mild pain, while in the mediolateral episiotomy group 24 people (23.1%) still felt moderate pain, and 80 people (76.9%) reported mild pain. After Kolmogorov-Smirnov testing, a significant difference was found in both groups ( $p=0.008$ ).

Grade II perineal laceration is the most common type of laceration identified in both groups, 87 subjects (83.6%) in the median episiotomy group and 94 subjects (90.4%) in the mediolateral episiotomy group. We identified more cases of grade III laceration in the median group, with 14 subjects (13.5%) experiencing grade IIIa laceration, 2 subjects (1.9%) experiencing grade IIIb laceration, and 1 subject (1%) experiencing grade IIIc laceration. Meanwhile, 10 subjects (9.6%) in the mediolateral group were identified with grade IIIa laceration and none had grade IIIb and IIIc rupture. Grade IV perineal rupture was not found in either group. Kolmogorov-Smirnov testing found no significant difference between both groups in terms of degree of perineal laceration.

## DISCUSSION

There are very few studies examining the relationship of the length of perineal body as a potential risk factor for laceration extension. However, the optimal perineal body to prevent laceration extension have not been defined until now.<sup>12,13</sup> In our study, the mean length of the perineal body in the median episiotomy group is  $2.95 \pm 0.27$  cm and  $2.98 \pm 0.31$  cm in the mediolateral group. Anupreet et al found the mean length of perineal body in Asian women was  $3.6 \pm 0.9$  cm and  $3.7 \pm 0.9$  cm in caucasian women.<sup>12</sup> Rizk et al found in their study of 114 people that those who have a lower risk of laceration extension has a mean perineal length of  $4.1 \pm 1.2$  cm.<sup>13</sup> Furthermore, Deering et al found that women with perineal body length less than 2.5 cm have a higher risk for laceration extension.<sup>3</sup>

Age is an important risk factor for pelvic floor damage, especially influencing tissue integrity and elasticity of the pelvic floor. In a retrospective study conducted on 2967 women, Hornemann et al found that age is the second most important risk factor influencing the severity of perineal laceration extension. Rortveit and Hunskaar found that women aged over 25 years old at first delivery

have an increased risk of urinary incontinence, especially stress incontinence. Whereas, Groutz et al found that women who give birth at over 37 years of age are at risk for postpartum urinary incontinence.<sup>14</sup>

Most researchers found a positive relationship between the birth weight of newborns and perineal trauma in delivery. Otherwise, no research has discussed when vaginal delivery should be avoided. Various maternal and infant factors, such as body mass index, bone structure of the pelvis, and fetal fat distribution, should be considered. The fetal head circumference was identified to have a significant relationship with pelvic floor dysfunction. We found no significant difference between the median and mediolateral episiotomy group in terms of birth weight. Therefore, birth weight is not considered a significant factor affecting perineal injury in our study.

In our study, we found no incidence of urinary or fecal incontinence in either group. However, Scherr et al reported incidence of urinary incontinence occurring after anal sphincter injury as much as 13-46%, especially stress incontinence.<sup>15</sup> The absence of urinary and fecal incontinence occurrence in our study may be caused by the low incidence of severe perineal injury in our subjects. In the median group, only 16.4% of subjects experienced grade IIIa or higher perineal injury, while in the mediolateral group only 10 subjects (9.6%) experienced grade IIIa perineal injury, with none experiencing a more severe injury.

Perineal pain is the most frequent complaint reported after vaginal delivery, which is caused by trauma to the perineal body. However the degree of pain will diminish over time. In the first few days after delivery, on average 42% of women will experience perineal pain, which will be reduced to 22% at week 8 and 10% at week 12 after delivery. The occurrence of perineal pain is associated with soft tissue trauma with or without sutures. The pain will be more severe if an inflammatory process is present.<sup>16</sup>

In this research, the most commonly reported degree of pain in the first 24 hours after delivery in both groups is moderate pain, with 70.2% of subjects reporting moderate pain. However, the incidence of severe pain, as reported by the subjects, was more common in patients who had mediolateral compared to the incidence of severe pain in patients receiving median episiotomy.

At day 14 postpartum, all subjects in the median episiotomy group reported only mild pain, while 24 subjects (23.1%) in the mediolateral episiotomy group still reported moderate pain and the rest reported mild pain. After conducting statistical tests, significant differences were identified between the two groups in terms of pain 24 hours and 14 days after delivery. Sleep et al, in their study conducted on 1000 patients receiving median or mediolateral episiotomy, found 24-hour postpartum pain after routine episiotomy compared to restrictive episiotomy was 14.6% versus 14.1% for mild pain, 7.8% versus 7.5% for moderate pain and 0.2% versus 0.9% for severe pain.<sup>6</sup> Fritell et al, in their research comparing restrictive and routine mediolateral episiotomy on 627 respondents, found perineal pain 4 years after delivery was as high as 6% after selective episiotomy compared to 8% after routine episiotomy, with pain during intercourse reported to be higher in routine episiotomy (18% vs 21%).<sup>2</sup>

House et al reported pain on day 3 after delivery as measured using visual analog scale was more severe in the routine episiotomy group than the restrictive episiotomy group. They found that severe pain was 11% versus 10%, moderate pain was 34% versus 18% and mild pain was 55% versus 68%. On the other hand, a study by the Argentine Episiotomy Trial Collaborative Group related in 2606 cases of median episiotomy found postpartum pain was 42.5% in the routine group versus 30.7% in the selective group.<sup>6</sup> Although they found significant results, pain is complex, many factors affect patients' experience of pain. Age, gender, beliefs and cultural values, anxiety, past experience with pain, family factors and social support, as well as coping mechanism can influence the degree of pain experienced by each individual.<sup>17</sup>

In some literatures, median episiotomy has been reported to have a higher risk of laceration extension of the birth canal. This study tries to perform selective median episiotomy, which is performed on women who have perineal body more than 2.5 cm. In this study, the mean perineal length of women who received median episiotomy was  $2.95 \pm 0.27$  cm, and found that in the median group, 76 people (73.1%) experienced a grade II rupture, 14 people (13.5%) experienced grade IIIa rupture, 2 people (1.9%) with grade IIIb rupture, and 1 person (1%) with grade IIIc.

## CONCLUSION

We conclude that there is no significant difference in the laceration extension between median and mediolateral episiotomy. Furthermore, there was no incidence of fecal and urinary incontinence in both groups. It was found that there were significantly more complaints of perineal pain in the median episiotomy group both in the first 24 hours and day 14 after delivery, in comparison to mediolateral episiotomy.

## REFERENCES

1. American College of Obstetricians-Gynecologists. ACOG Practice Bulletin. Episiotomy. Clinical Management Guidelines for Obstetrician-Gynecologists. Number 71, April 2006. *Obstet Gynecol* 2006; 107(4): 957-62.
2. Cunningham F. Episiotomy. In: Gillstrap L, Cunningham F, vanDorsten JP. (Eds.) *Operative obstetrics*. 2<sup>nd</sup> ed. Texas: McGraw-Hill; 2002: 63-88.
3. Thakar R, Eason E. Prevention of perineal trauma. In: Sultan AH, Thakar R, Fenner DE. *Perineal and anal sphincter trauma. Diagnosis and clinical management*. 1<sup>st</sup> ed. London: Springer Verlag; 2007: 57-8.
4. Carley ME, Carley JM, Vasdev G, et al. Factors that are associated with clinically overt postpartum urinary retention after vaginal delivery. *Am J Obstet Gynecol* 2002; 187(2): 430-3.
5. Lede RL, Belizan JM, Carroli G. Is routine use of episiotomy justified? *Am J Obstet Gynecol* 1996; 174(5): 1399-402.
6. Hartmann K, Viswanathan M, Palmieri R, et al. Outcomes of routine episiotomy - a systematic review. *JAMA* 2005; 293(17): 2141-8.
7. Thaker SB. Mediolateral versus midline episiotomy. We still don't know which cut is better or how beneficial the procedure is. *BMJ* 2000; 320(7250): 1615-6.
8. Rodriguez A, Arenas EA, Osorio AL, et al. Selective vs routine midline episiotomy for the prevention of third-or fourth-degree laceration in nulliparous women. *Am J Obstet Gynecol* 2008; 198(3): 285 e1-4.
9. Bansal RK, Tan WM, Ecker JL, et al. Is there a benefit to episiotomy at spontaneous vaginal delivery? A natural experiment. *Am J Obstet Gynecol* 1996; 175(4 pt 1): 897-901.
10. Sidighi YG. *Episiotomy*. Ohio: McGraw Hill Inc; 2006.
11. Throp JM Jr, Bowes WA Jr, Brame RG, et al. Selected use of midline episiotomy: effect on perineal trauma. *Obstet Gynecol* 1987; 70(2): 260-2.
12. Dua A, Whitworth M, Dugdale A, et al. Perineal length: norms in gravid women in the first stage of labour. *Int Urogynecol J Pelvic Floor Dysfunct* 2009; 20(11): 1361-4.
13. Rizk DE, Abadir MN, Thomas LB, et al. Determinants of the length of episiotomy or spontaneous posterior vaginal lacerations during birth. *Int Urogynecol J Pelvic Floor Dysfunct* 2005; 16(5): 395-400.
14. Lavy Y, Sand PK, Kaniel CI, et al. Can pelvic floor injury secondary to delivery be prevented? *Int Urogynecol J*. 2012; 23(2): 165-73.

15. Scheer I, Andrews V, Thakar R, et al. Urinary incontinence after obstetric anal sphincter injuries (OASIS)-is there a relationship? *Int Urogynecol J Pelvic Floor Dysfunct* 2008; 19(2): 179-83.
16. Thakar R, Sultan AH. Postpartum problems and the role of a perineal clinic. In: Sultan AH, Thakar R, Fenner DE. *Perineal and anal sphincter trauma. Diagnosis and clinical management*. 1<sup>st</sup> ed. London: Springer Verlag; 2007: 65-79
17. Brelvik EK, Bjömsson GA, Skovlund E. A Comparison of pain rating scales by sampling from clinical trial data. *Clin J Pain* 2000; 16(1): 22-8.