

## Research Article

## The 45° Mediolateral Episiotomy: Does it Reduce to the Incidence of Extended Laceration Incidence and Postlabour Pain?

### *Episiotomi Mediolateral 45 Derajat terhadap Kejadian Perluasan Cedera dan Nyeri Pascalin pada Primigravida*

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#### Abstract

**Objective :** To investigate the relationship of 45° to 60° mediolateral episiotomy and the incidence of extended laceration and post labour pain in primigravida.

**Methods :** This study used simple randomization design which was conducted in the Department of Obstetrics and Gynecology, Teaching Hospital, Faculty of Medicine, Universitas Hasanuddin from April 2018 to September 2018. There were 80 samples for the 45° mediolateral episiotomy group and 80 samples for the 60° group.

**Results :** After the Chi-Square correlation test has been carried out, the research result indicates that there is a higher incidence in 60° mediolateral episiotomy group in extended perineal laceration ( $p=0.002$ ), and Fisher Exact test shows that post-labour pain ( $p=0.000$ ) higher in the same group compared to the 45° group.

**Conclusions :** Mediolateral episiotomy 45° have lower extended perineal laceration and post-labour pain compared to the 60° group.

**Keywords :** episiotomy, mediolateral 45°, mediolateral 60°, perineal laceration, post-labour pain, primigravida.

#### Abstrak

**Tujuan :** Mengetahui hubungan episiotomi mediolateral 45° dan 60° terhadap kejadian perluasan cedera dan nyeri pascalin pada primigravida.

**Metode :** Simple randomization. Penelitian dilaksanakan di Rumah Sakit Pendidikan Departemen Obstetri dan Ginekologi Fakultas Kedokteran Universitas Hasanuddin periode April 2018 – September 2018. Total sampel yang diperoleh adalah 80 untuk kelompok 45° dan 80 sampel untuk kelompok 60°.

**Hasil :** Setelah dilakukan uji hubungan dengan Chi Square terdapat hubungan yang signifikan pada episiotomi 60° dengan kejadian perluasan cedera ( $p=0,002$ ) dan uji Fisher menyatakan hubungan bermakna nyeri pascalin pada kelompok yang sama ( $p=0,000$ ) dibandingkan episiotomi 45°. Episiotomi mediolateral 45° memiliki luaran lebih sedikit menyebabkan kejadian perluasan cedera dan nyeri pascalin dibandingkan episiotomi 60°.

**Kata kunci :** episiotomi, mediolateral 45°, mediolateral 60°, nyeri pascalin, primigravida, ruptur perineum.

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#### INTRODUCTION

An episiotomy is one of the most usual surgical procedures in obstetrics to accelerate the delivery time of the baby. The episiotomy itself has been carried out almost all over the world to avoid the occurrence of extensive perineal tears such as third or level four perineal rupture. There are several ways to do an episiotomy, such as medial, mediolateral and lateral episiotomy. A medial episiotomy is rarely done since the tear can extend to the anus<sup>1</sup>. What is often done almost all over the world is a mediolateral episiotomy<sup>2</sup>.

A consensus was carried out on the European continent where no clear and firm definition was agreed upon between one country and another, as well as between one hospital and another so that a joint decision was needed to agree on what episiotomy angle should be used<sup>3</sup>. A 45° mediolateral episiotomy has been carried out to avoid a tear in the sphincter. In fact, after repairing the perineum, the episiotomy scar of 45° angle changes to 10-15°, so the mediolateral episiotomy of 45° is feared to injure the anal sphincter muscle<sup>4</sup>. A mediolateral episiotomy is done to prevent the occurrence of tears in the

sphincter muscle, but there is still a possibility of sphincter injury after mediolateral episiotomy, that is, after perineal repair, the episiotomy scar angle of 60° changes to 45° so that the sphincter muscle can be avoided. The question is which angle is taken for episiotomy, is it 45° or 60°?<sup>5</sup>

The objective of this study is to investigate the relationship of 45° and 60° mediolateral episiotomy and both extended laceration incidence and post-labour pain in primigravida.

## METHODS

This study was conducted at the Khadijah I Hospital, Pertiwi Hospital and Fatimah Hospital, Makassar. Spontaneous deliveries are attended by midwives, whereas instrumental deliveries by physicians. In our hospitals, all spontaneous deliveries are attended by midwives and instrumental deliveries by the resident doctor. The routine hospital practice is to perform an examination before vaginal delivery to see whether the labour is indicated for an episiotomy to avoid anal sphincter lacerations. If there was an extended vaginal laceration after episiotomy, the resident would examine and evaluate every case and suture the laceration of second-degree perineal tears. If the third or fourth-degree perineal laceration occurs, the experienced consultant was called to repair the laceration.

Recruitment took place over a 6-month period from January to June 2018. All primigravida with an indication of episiotomy, who were available for recruitment in the maternity ward, were approached before delivery and invited to participate by signing the informed consent form. The inclusion criteria were primigravida, mother's age is in the range of 15-35 years, single pregnancy with normal presentation, no sign of infection, no vulvar or vaginal abnormalities or genital infections, not having history of vaginal surgery procedures or a history of antepartum bleeding, no contraindication for vaginal delivery,

the interpretation of fetal weight between 2.500 grams to 4.000 grams, has an indication of an episiotomy. A total of 160 primigravida were invited to participate and agreed to enrol in the study and signed informed written consent. All the participants were examined within 24 hours postpartum. Episiotomy was performed when the fetal head had been in crowning position, with the special device with whether 45° or 60° in 2 cm length of episiotomy. After the procedure, we check whether there are additional perineal tears or not that are marked by the edges of uneven wounds or the addition of tears outside the episiotomy site. After 24 hours, perineal pain was assessed with VAS and categorized into 3 categories, namely mild (VAS 0-3), moderate (VAS 4-6), and severe (VAS 7-10). They were shown VAS and explained that 0 represented "no pain at all" and 10 "the worst pain ever." Statistical calculations were performed with SPSS. Bivariate analyses were performed by chi-square test and Fisher exact test. A p value of <0.05 was chosen as a statistical significance level.

## RESULTS

In this study, there were 160 subjects in total, 80 each for both mediolateral episiotomy groups. The characteristics of the research subject can be seen in table 1. It can be seen that in both groups homogeneous and not significant differences between the two episiotomy groups. A total of 49 (61.25%) subjects who underwent 60° mediolateral episiotomy treatment experienced an extension of injury. Meanwhile, only 29 (36.25%) subjects had 45° mediolateral episiotomy who experienced an extension of injury (table 2). The degree of episiotomy is related to the extent of injury ( $p = 0.002$ ). 38 (47.5%) subjects who underwent 60° mediolateral episiotomy experienced moderate pain. Meanwhile, only 1 (1.25%) subjects had 45° mediolateral episiotomy who experienced moderate pain (table 2). No subject experienced severe pain. The degree of episiotomy is related to the degree of pain ( $p = 0.000$ ).

**Table 1.** Characteristics of the Study Sample

Sample	Episiotomy 45°		Episiotomy 60°		P-value
	n	%	n	%	
<b>Characteristic</b>					
<b>Age (year)</b>					
Low risk	66	82.5	67	83.7	0.833
High risk	14	17.5	13	16.3	
<b>Education</b>					
Basic	16	20	14	17.5	0.685
High	64	80	66	82.5	
<b>BW* (gram)</b>					
BW	2969.37	± 254.5	3019.38	± 299.13	0.257
<b>Head Circumference (cm)</b>					
HC	32.11	± 0.914	32.09	± 1.009	0.870

\*BW: birth weight

**Table 2.** Expansion of Injuries and O of Pain Based on Episiotomy

Variable	Mediolateral Episiotomy				P-value
	45°		60°		
	n	%	n	%	
<b>Extended Laceration</b>					
Yes	29	36.25	19	61.25	0.002
No	51	63.75	31	38.75	
<b>Pain</b>					
Mild	79	98.75	42	52.5	0.000
Moderate	1	1.25	38	47.5	

## DISCUSSION

Episiotomy in primigravida patients can reduce the incidence of perineal trauma<sup>6</sup>. Therefore, there were no differences in risk factors for both groups of subjects to experience perineal trauma. In this study, there were no significant differences between maternal age at delivery, birth weight, and head circumference in the two subject groups. Subjects in this study gave birth to a baby with a median birth weight of 3.000 (2.500-3.900) grams. Previous research stated that high birth weight could increase the risk of perineal trauma<sup>7</sup>. However, there were no subjects who gave birth to babies > 4.000 grams. Therefore, there are no differences in the risk factors of both subjects for the possibility of perineal trauma.

A large baby's head circumference is a risk factor for perineal trauma. Each increase of 1 cm in the head circumference of a baby will increase the risk of perineal trauma by 1.22 times<sup>8</sup>. The greater the head circumference of a baby born by vaginal delivery will increasingly cause strain on the perineum and will increase the risk of perineal trauma. Subjects in this study gave birth to babies with an average head circumference of 32 (30-35) cm, and there were no significant differences between the two groups of subjects. Therefore, differences in the head circumference

of babies born by subjects do not affect the results of the study.

In this study, a mediolateral episiotomy was carried out 45° and 60° with the same episiotomy length of 2 cm, but the area produced was certainly different due to the use of the episiotomy angle. A 45° angle of 2 cm will add a circle diameter of 1.41 cm (cos 45°), while an angle of 60° with the same length results in an expansion of a diameter of 1 cm (cos 60°) so that the mediolateral episiotomy of 60° will experience more injury expansion than 45° due to the expansion of smaller diameters.

Moderate pain was experienced by 38 (47.5%) subjects who underwent a 60° mediolateral episiotomy. Meanwhile, only 1 (1.25%) subjects underwent a mediolateral episiotomy of 45°. There is a significant difference between the degree of pain in the mediolateral episiotomy 60° compared to 45°. This is in line with previous studies which stated that moderate / severe pain after 4 hours and one day was more experienced by subjects treated with episiotomy 60°.<sup>9</sup> In terms of anatomy, the perineal area is innervated by the pudendal nerve. In the perineum, there are many ends of nerve fibres so that the episiotomy can cause pain. A 60° mediolateral episiotomy can make a wound longer than a mediolateral

episiotomy 45°. This can make the pain in the 60° mediolateral episiotomy have a higher degree of pain than the mediolateral episiotomy 45°. <sup>10</sup>

This study has several limitations, such as the expansion of injuries reaching the level 3 and 4 perineal rupture not found in both groups so that it is not certain which is more superior to the incidence of anal sphincter rupture. Six months of post-episiotomy pain and coital pain have not been studied. The post-suturing angle is also not measured, so there is no possibility of a possible risk of anal sphincter injury in subsequent pregnancies if vaginal delivery is carried out without episiotomy procedure.

### CONCLUSION

In this study, it can be concluded that the expansion of perineal injury in the mediolateral episiotomy group is 45° less than the episiotomy of 60°. The degree of pain is lighter in the mediolateral episiotomy 45° compared to 60° where there are more stitches than the 45° mediolateral episiotomy.

### CONFLICT of INTEREST

None.

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