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## OBSTETRICS

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# Third and Fourth Degree Perineal Lacerations of Episiotomy Versus Non-Episiotomy in Spontaneous Vaginal Deliveries at Phramongkutklao Hospital

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### ABSTRACT

**Objective** To study third and fourth degree perineal lacerations of episiotomy versus non-episiotomy in spontaneous vaginal deliveries.

**Materials and Methods** 164 term singleton pregnancies admitted for spontaneous vaginal deliveries were randomly assigned to episiotomy or non-episiotomy at the time of deliveries. The primary outcome was number of third and fourth degree perineal lacerations. Postpartum perineal pain score was also assessed at 24 and 48 hours in different positions (stand, walk, lie down and sit).

**Results** 164 term singleton pregnancies were analyzed (82 cases / group). None of fourth degree laceration was found in this study. Third degree laceration occurred 8.5% in episiotomy group and 1.2% in non-episiotomy group (Relative risk, 8; 95% confidence interval [CI] 1.28 to 50.04). No difference in perineal pain score at 24 and 48 hours postpartum.

**Conclusion** In term pregnancies with spontaneous vaginal deliveries, the episiotomy group had more risk of third degree perineal laceration than non-episiotomy group with no difference in pain.

**Keywords:** episiotomy, third and fourth degree perineal laceration, term pregnancies, spontaneous vaginal deliveries

### Introduction

Episiotomy was first suggested by Ould in 1742 as an aid in difficult vaginal deliveries. It was not used until 1920, following articles published by DeLee and Pomeroy, that the routine use of episiotomy became widespread. Prevention of severe perineal

tears was advocated as a benefit of routine episiotomy in primiparous women, who were at increased risk for third- and fourth-degree lacerations. These injuries might have short- and long-term sequelae, such as perineal pain, dyspareunia, incontinence of gas or feces, and

rectovaginal fistula.<sup>(1)</sup>

Thacker and Banta's in 1983 reviewed of episiotomy literature from 1860 through 1980, which found only few good studies and no evidence of any benefits, sparked further investigation.<sup>(2)</sup> Multiple studies during this period demonstrated that the routine use of episiotomy did not protect against pelvic relaxation or fetal intracranial hemorrhage. Episiotomy, actually increased rates of perineal infection, blood loss, pain during healing, negatively affected body image issues and sexual function, and incidence of injuries to the anal sphincter which subsequent increased risks of incontinence of flatus and fecal material.<sup>(3)</sup> In addition, the American College of Obstetricians and Gynecologists, 2006 suggested that restricted use of episiotomy is preferable to routine use of episiotomy.<sup>(4)</sup> World Health Organization suggested that episiotomy should be considered only in the case of complicated vaginal delivery (breech, shoulder dystocia, forceps, vacuum), scarring from female genital cutting or poorly healed third or fourth degree tears and fetal distress.<sup>(5)</sup>

Bansal RK, et al. found that between 1976-1994, the use of episiotomy decreased significantly and this change was associated with a fall in the rate of third and fourth degree lacerations and a rise in the rate of intact perineum and vaginal lacerations.<sup>(6)</sup> This came to our research question "Would we gain any benefits from the routine episiotomy?", so this study was conducted to compare the result between episiotomy and non episiotomy in term of third and fourth degree perineal lacerations.

## Materials and Methods

After approved by the Institutional Review Board of Royal Thai Army Medical Department, a randomized controlled trial study was performed by comparing control group which referred to non-episiotomy and study group which referred to episiotomy. The trial took place at labor room of Phramongkutklao Hospital between May – August 2007. One hundred sixty-four singleton term pregnant women without underlying medical or any

pregnancy-related complications who were in labor and spontaneous vaginal delivery without signs of chorioamnionitis were recruited in this study. Those women who had known allergy to local anesthetic agents, underwent epidural anesthesia, those refused to participate in the trial were excluded. After informed consent, every pregnant woman was randomly assigned either to episiotomy or non-episiotomy groups when they intended to deliver vaginally. During intrapartum period, the same standard obstetrical managements were provided in both groups. They went on either to episiotomy or non-episiotomy when they impending to spontaneous vaginal delivery. After deliveries, the outcomes were assessed by 4 doctors who trained about the degree of perineal lacerations.

Primary outcome was the proportion of third and fourth degree perineal lacerations among episiotomy and non-episiotomy groups. Severity of perineal trauma was classified in accordance with the tissue being involved; 1<sup>st</sup> degree involved the fourchette, perineal skin and vaginal mucous membrane, 2<sup>nd</sup> degree involved the fascia and muscles of the perineal body, 3<sup>rd</sup> degree involved anal sphincter, and 4<sup>th</sup> degree involved the rectal mucosa.<sup>(7)</sup> Perineal pain score was assessed as the secondary outcome at 24 and 48 hours postpartum in various positions including stand, walk, lie down and sit. The patients used the numerical rating scale to assess their perineal pain from 0-5 (0 = no pain, 1 = pains little bit, 2 = pains little more, 3 = pains evermore, 4 = pains whole lot, 5 = pains worst)

The data was analyzed by statistics software program SPSS version 14.0. Descriptive data were reported as frequency, percentage, mean, median, standard deviation (S.D.) For the comparison of result, Student t-test, Pearson's chi-Square, Mann-Whitney U test were used. A p-value of less than 0.05 was considered statistically significant difference.

## Results

There were 164 women randomly allocated equally into episiotomy group and non-episiotomy group. No patient was excluded during the present

study. The baseline characteristics included mean age, weight, height, and gestational age, were similar in both groups. By chance, more nullipara were found in episiotomy group (66.7% compared to 33.3% in non-episiotomy group) and this was statistically significant different ( $p$ -value  $< 0.05$ ) (Table 1). Duration of first stage of labor, fetal weight, 1- and 5- minute APGAR scores were nearly the same in both groups, even  $p$ -value was less than 0.05 for 5-minute APGAR scores, but it was no clinically significant. Duration of second stage of labor was  $41.62 \pm 31.61$  min. in episiotomy group which was much longer than the time used in non-episiotomy group ( $26.72 \pm 27.28$  min.) with  $p$ -value  $< 0.05$ . Majority of attending personnel were medical cadets and residents in both groups, while the rest were army nurse students and nurses. This data was not statistically significant different as shown on Table 2.

Table 3 revealed degree of perineal laceration. None of fourth degree laceration was found. Interestingly, third degree laceration occur 7 cases (8.5 %) in episiotomy group [ 2 in 22 cases of median (9.1%), 5 in 60 cases (8.3%) of mediolateral type ] and only 1 case (1.2 %) in non-episiotomy group. This shown statistically significant difference at  $p$ -value  $< 0.001$ . The relative risk of having third degree perineal laceration in episiotomy group was 8 times compared with the non-episiotomy group with 95% confidence interval of 1.28 to 50.04.

Perineal pain score at 24-hours and 48-hours postpartum were the same in both groups whatever the position they were (Table 4). Analgesic agents used were not statistically significant different between both groups. There were 3 women in episiotomy group and 1 woman in non-episiotomy group getting pethidine injection. (Table 5).

## Discussion

We used the third and fourth degree lacerations as the primary outcome since they were considered as the more severe lacerations. In addition, third and fourth degree perineal laceration could be easily and precisely identified by gross anatomy. More nullipara

was statistically significant found in episiotomy group than in non-episiotomy group. This difference could occur by chance even randomization was conducted. The duration of second stage of labor in episiotomy group was longer than non-episiotomy group and this could be explained by the higher number of nullipara found in the former group. Attending personnel (medical cadet students, residents, army nurse students and nurses) were evenly distributed between 2 groups .

In non-episiotomy group, 8.5% still had intact perineum after deliveries, and no fourth degree tear occurred which might be the effect of small sample size. Moreover, non-episiotomy group had 8-folds reduction risk of third degree perineal lacerations compared with episiotomy group. Labrecque M. (1997) revealed similar result that third and fourth degree tears took place more frequently when episiotomy was performed.<sup>(1)</sup> Contrary, Lam KW (2006) reviewed the use of episiotomy during vaginal delivery in Hong Kong, and reported the significantly lower overall rate of perineal tearing in primiparous women who had episiotomy.<sup>(6)</sup> The different between Lam's study and the present study may be due to Lam's study was observational study. Regarding very few cases of third degree perineal laceration, we could not compare the degree of tear between the study and control group subdivided by types of episiotomy (median, mediolateral). Our result showed that postpartum perineal pain score at 24 and 48 hours were the same in both groups whatever the position they were in. This probably due to the low rate of severe perineal tear detected in both groups.

Experience from this study guided us to suggest that episiotomy should not be performed routinely but might be selectively only in cases with appropriate indications such as complicated vaginal delivery (breech, shoulder dystocia, forceps, vacuum), scarring from female genital cutting or poorly healed third or fourth degree tears as well as fetal distress. In accordance with Thailand health policy, the application of the knowledge we gained from this study could save the budgets for medical

treatment such as reduce course of sterilizing suture instruments. However, long term sequelae of this procedure must be followed up.

**Table 1.** Demographic characteristics of women who had or did not have episiotomy.

Characteristics	Episiotomy n = 82	Non-episiotomy n = 82	p-value
Maternal age, yr ; mean ( $\pm$ SD)	28.27 ( $\pm$ 6.38)	27.57 ( $\pm$ 5.36)	0.451
Maternal weight, kg ; mean ( $\pm$ SD)	68.12 ( $\pm$ 9.70)	66.74 ( $\pm$ 10.70)	0.389
Maternal height, cm ; mean ( $\pm$ SD)	157.87 ( $\pm$ 6.20)	158.18 ( $\pm$ 5.25)	0.725
Maternal gestational age, wk ; mean ( $\pm$ SD)	38.70 ( $\pm$ 1.21)	38.88 ( $\pm$ 1.20)	0.306
Parity			
Nulliparous ( n = 78 )	52 (66.7%)	26 (33.3%)	
Multiparous ( n = 86)	30 (34.9%)	56 (65.1%)	<0.001*
Duration of stage of labor (min, mean $\pm$ SD)			
1 <sup>st</sup> stage of labor	626.93 ( $\pm$ 399.71)	475.78 ( $\pm$ 305.48)	0.010*
2 <sup>nd</sup> stage of labor	41.62 ( $\pm$ 31.61)	26.72 ( $\pm$ 27.28)	<0.001*
Birth weight (g.)	3064.76 ( $\pm$ 359.78)	3121.59 ( $\pm$ 412.01)	0.348
1 minute APGAR score [mean (range)]	9 (5 – 10)	9 (6 – 10)	0.207
5 minute APGAR score [mean (range)]	10 (8 – 10)	10 (7 – 10)	0.022*

\* Statistical significant

**Table 2.** Characteristics of attending personnel.

Attending personnel	Episiotomy (%)	Non-episiotomy (%)	p-value
Med cadet, n = 68	37 (54.4)	31 (45.6)	
Resident, n = 60	33 (55.0)	27 (45.0)	0.134*
Nurse army student, n = 15	6 (40.0)	9 (60.0)	
Nurse, n = 21	6 (28.6)	15 (71.4)	

\* Pearson Chi-Square

**Table 3.** Degrees of perineal laceration.

Degrees of perineal laceration	Episiotomy		Non-episiotomy n = 82 (%)	p-value
	Median n = 22 (%)	Mediolateral n = 60 (%)		
Perineal intact	0	0	7 (8.5)	
1 <sup>st</sup> degree	0	0	31 (37.8)	
2 <sup>nd</sup> degree	20 (90.9)	55 (91.7)	43 (52.4)	<0.001*
3 <sup>rd</sup> degree	2 (9.1)	5 (8.3)	1 (1.2)	
4 <sup>th</sup> degree	0	0	0	

\* Pearson Chi-Square

**Table 4.** Comparative perineal pain score at 24 and 48 hours between episiotomy and non-episiotomy groups.

Positions	Postpartum perineal pain score (0 – 5)		p-value
	Episiotomy, n = 82	Non-episiotomy, n = 82	
At 24 hours			
Stand	2 (0 – 5)	2 (0 – 5)	0.892 <sup>+</sup>
Walk	3 (0 – 5)	3 (0 – 5)	0.143 <sup>+</sup>
Lie – down	2 (0 – 5)	2 (0 – 5)	0.465 <sup>+</sup>
Sit	3 (0 – 5)	2 (0 – 5)	0.100 <sup>+</sup>
At 48 hours			
Stand	2 (0 – 4)	2 (0 – 5)	0.388 <sup>+</sup>
Walk	2 (0 – 4)	2 (0 – 4)	0.019 <sup>+</sup>
Lie – down	1 (0 – 4)	1 (0 – 3)	0.140 <sup>+</sup>
Sit	2 (0 – 4)	2 (0 – 4)	0.278 <sup>+</sup>

<sup>+</sup> Mann-Whitney U test

**Table 5.** Comparative analgesic agents that the patients used between episiotomy and non-episiotomy groups.

<b>Analgesic agents uses</b>	<b>Episiotomy (%)</b>	<b>Non-episiotomy (%)</b>	<b>p-value</b>
Paracetamol (n = 84)	43 (51.2)	41 (48.8)	
Pethidine (n = 4)	3 (75.0)	1 (25.0)	0.533*
No use (n = 76)	36 (47.4)	40 (52.6)	

\* Pearson Chi-Square

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## การเปรียบเทียบการฉีกขาดของฝีเย็บระดับสามและสี่ ระหว่างมารดาที่ได้รับการตัดฝีเย็บและมารดาที่ไม่ได้รับการตัดฝีเย็บระหว่างการคลอดที่โรงพยาบาลพระมงกุฎเกล้า

จักรพันธ์ สุภเดช, กุศทินันท์ บุรณวิทย์, สยมพร โกมลภิส, สุธี พานิชกุล

**วัตถุประสงค์ :** เพื่อศึกษาเปรียบเทียบการฉีกขาดของฝีเย็บระดับสามและระดับสี่ ระหว่างมารดาที่ไม่ได้รับการตัดฝีเย็บและมารดาที่ได้รับการตัดฝีเย็บจากการคลอดปกติ

**วัสดุและวิธีการ :** สตรีตั้งครรภ์เดี่ยวครบกำหนด จำนวน 164 คน และรับไว้ในโรงพยาบาลเพื่อคลอดทางช่องคลอด โดยแบ่งกลุ่มแบบสุ่มเป็น 2 กลุ่มเท่าๆ กัน โดยเป็นกลุ่มที่ได้รับการตัดฝีเย็บและไม่ตัดฝีเย็บระหว่างการคลอด จากนั้นทำการประเมินอุบัติการณ์ระดับความรุนแรงของการฉีกขาดของฝีเย็บระดับสามและสี่ และความเจ็บปวดบริเวณฝีเย็บที่เวลา 24 และ 48 ชั่วโมงหลังคลอดในทำ ยืน, เดิน, นอน และ นั่ง

**ผลการศึกษา :** สตรีตั้งครรภ์เดี่ยวครบกำหนดที่นำมาศึกษา จำนวน 164 คน (82 คน/กลุ่ม) ไม่พบการฉีกขาดของฝีเย็บระดับสี่ กลุ่มที่ตัดฝีเย็บพบการฉีกขาดระดับที่สามร้อยละ 8.5 และกลุ่มที่ไม่ตัดฝีเย็บ พบร้อยละ 1.2 (Relative risk, 8; 95% confidence interval [CI] 1.28 to 50.04) ส่วนความเจ็บปวดบริเวณฝีเย็บหลังคลอด 24 และ 48 ชั่วโมง พบไม่แตกต่างกัน

**สรุป :** การตัดฝีเย็บในการคลอดปกติของสตรีตั้งครรภ์ครบกำหนดมีโอกาสเกิดการฉีกขาดของฝีเย็บระดับสามได้มากกว่าการไม่ตัดฝีเย็บ แต่ความเจ็บปวดของแผลไม่แตกต่างกัน

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