

Whether Selective or Routine Episiotomy is More Useful to Protect Anal Sphincter in Primiparous Women

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ABSTRACT:

BACKGROUND:

Perineal trauma is a common event, affecting up to 90% of first time mothers. It is a cause for concern for many women and in some countries has led to a large increase in the numbers of women requesting elective caesarean section.

OBJECTIVE:

To highlight when episiotomy can be useful in preventing anal sphincter injury in primiparous women.

MATERIALS AND METHODS:

This study is a prospective interventional clinical study conducted at AL-Elwiya Maternity Teaching Hospital in Baghdad throughout the period between Jan. 2009- Dec. 2009.

Three hundred term primiparous ladies at time of their delivery with cephalic presentation were collected and subdivided into 3 equal groups randomly.

The first group, women who were subjected to routine mediolateral episiotomy, while the second group of the participants were delivered without doing episiotomy, and the third group, a mediolateral episiotomy was done selectively to them when we found it is necessary (selective episiotomy).

State of the perineum, length of 2nd stage, weight of the baby, fetal head position and the occurrence of anal sphincter injury were all notified and carefully recorded on special form designed for the study.

RESULTS:

Selective episiotomy was found to be more useful than routine episiotomy in preventing anal sphincter injury (the incidence of anal sphincter injury was 2% for those in whom episiotomy was performed selectively, while it is 8% for those with routine episiotomy and 7% for those delivered without episiotomy), and the difference is statistically significant (P value 0.045).

There was a significant effect of the length of second stage of labour on the incidence of anal sphincter injury (P value 0.017), similarly for the weight of baby (P value 0.017).

CONCLUSION:

Selective episiotomy is more useful intervention than routine episiotomy in protecting the anal sphincter when delivering a primiparous lady.

KEY WORDS: primiparous, labour, episiotomy, anal sphincter

INTRODUCTION:

Episiotomy is a surgical incision of the perineum with the aim of increasing the soft tissue outlet dimensions to help with child birth. ⁽¹⁾

Although introduced as an obstetric procedure more than 200 years earlier, in general obstetricians only come to favor episiotomy at the beginning of the twentieth century. It was then thought that all primigravidae should

receive an episiotomy to protect the fetal head and the pelvic floor. The problems associated with the procedure, include unsatisfactory anatomical results, increased blood loss, perineal pain and dyspareunia. The World Health Organization (WHO) recommends an episiotomy rate of 10% for normal deliveries. ⁽²⁾

However, incidence is variable, with rate ranging from 9.7% in Sweden to 100 % in Taiwan, considering both nulliparous and multiparous women. In Latin American hospitals, the rate of episiotomy among nulliparous women varies from 69% to 96% with an average of 94% in 14 other countries. ⁽³⁾

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SELECTIVE OR ROUTINE EPISIOTOMY

Episiotomy is advocated when fetal distress to expedite delivery.⁽⁴⁾ or to facilitates instrumental vaginal deliveries and when vaginal manipulations needed such as in breech deliveries and shoulder dystocia, also when delivery is delayed due to a rigid perineum and in those with previous pelvic floor or perineal surgery⁽⁵⁾.

Compared to women with a prior vaginal delivery, primiparas had more than six time the risk of a sphincter laceration.^(6,7) Other factors that have been associated with sphincter lacerations include Birth weight >4 kg, Persistent occipito-posterior position, Shoulder dystocia, Prolonged second stage and Forceps delivery. Obstetric anal sphincter laceration has been reported in 2.2% to 19% of vaginal births.^(6,8,9,10) Child birth may be accompanied mechanical or neurological injury to the anal sphincter. Overt sphincter damage due to a third degree or fourth degree tear occurs in approximately 0.7% of women undergoing vaginal delivery in centers where mediolateral episiotomy is practiced.⁽¹¹⁾

Aim of the study is to show the benefit of doing episiotomy in primiparous women to protect the anal sphincter.

SUBJECTS AND METHODS:

This prospective interventional study was conducted at AL-Elwiya Maternity Teaching Hospital in Baghdad between Jan 2009 and Dec 2009.

Three hundred primiparous women with singleton and cephalic term pregnancy, collected and allocated into three equal groups randomly during their delivery :

The first group: subjected to mediolateral episiotomy (routine work at hospital).

The second group: delivered without doing episiotomy.

The third group: Episiotomy was done when the attendant found it is necessary, because of a big size baby or tight perineum.

The demographic and obstetric data were also recorded on a special form designed to them and the work up included history and general and obstetrical examination. Gestational age was determined according to the date of the last menstrual period and/or early pregnancy ultrasound. All the ladies were examined by the same doctor (researcher).

After explaining to them the idea of our study, and receiving their verbal consent, we collected the information from them and record it on special form.

The first stage of labour was monitored in labour room, using active management of labour, including ARM and oxytocin drip, till reaching the second stage of labour, where decision of episiotomy was done depending on which group the women allocated, 1st group (one hundred women), they were subjected to routine episiotomy, after completing this group a second group of the participants (one hundred women) were allocated to deliver without episiotomy, and after this group the third group of participants (one hundred women) were assessed to decide which of them should subject to episiotomy according to size of the baby and the state of perineum (being tight or not).

The following parameters were recorded:

1. State of perineum (tight or not), which is subjective and depends on the assessment of examiner.
 2. Length of 2nd stage of labour, marked by full dilatation of cervix.
 3. Weight of the baby, usually by clinical and ultrasonic assessment.
- Clinical assessment by Johnsons formula = fundal height in cm - N x155, N=13 if head not engaged and N=12 if head engaged (0 station), N=11 if head engaged (+ 1 station) Ultrasonic assessment according to Hadlock et al (12), the formula is :
- $$\text{Weight of the baby} = 1.5622 - 0.0180 \times \text{HC} + 0.171 \times \text{FL} + 0.00034 \times \text{HC}^2 - 0.003685 \times \text{AC} \times \text{FL}$$
- After delivery the weight of the baby was recorded and compared.
4. Decision regarding episiotomy.
 5. Degree of perineal tear if present after delivery.
 6. Notes about the delivery like occurrence of signs of fetal distress, any mechanical difficulty during delivery as shoulder dystocia.

Statistical analysis: Data were collected and recorded on a special form designed for the study and they arranged in tables and analysed using descriptive statistics (Tables, graphs, frequency and percentages) and inferential statistics (Chi square and unpaired t-test) were used to find the association between the related variables.

Data was entered and analyzed by Mini Tab soft ware, P-value <0.05 was considered significant.

RESULTS:

Table-1: shows the clinical data of the patients in the three groups. There are no significant

differences regarding their Age (mean, standard deviation), State of perineum and the occurrence of occipito-posterior position during delivery of the head, while there are significant differences in the Length of 2nd stage (mean, standard deviation, minimum and maximum time for each group), Weight of the baby (the mean, standard deviation, minimum and maximum weight) and occurrence of anterior vaginal wall tears. There is more anterior vaginal wall tears when no episiotomy (in One tear in group 1, eight in group 2 and four in group 3)

Table-2: Shows number of perineal tears occurred in the three groups and their percentages. Eight anal sphincter tears in group 1, seven in group 2 and two in group 3 and there is a significant difference in the incidence of anal sphincter injury between the three groups, (p-value 0.045).

Eleven patients with 1st and 2nd degree tears in group 1 versus 19 in group 2 versus 16 in group 3 and there is no significant difference between the 3 groups (p-value 0.344). There is no significant difference in the incidence of 3rd and 4th degree tears in comparison to 1st and 2nd degree tears between the 3 groups (p-value 0.105).

Also there is no significant difference between the three groups regarding the total number of perineal tears (p-value 0.404).

Table-3: shows the distribution of anal sphincter tears by age of the mother. There is no significant difference in the anal sphincter tears between the three groups in the two age groups (p-value 0.772).

Figure-1: shows the incidence (per one hundred) of anal sphincter tears (including 3rd and 4th degree perineal tears).

Eight anal sphincter injuries in group 1, seven in group 2 and two in group 3 and 5.67 for the total number of the patients.

Table-4: Shows the distribution of anal sphincter tears according to state of perineum whether tight perineum or not in the different groups. There is

no significant difference in the anal sphincter tears between the three groups (p-value 0.819).

But there is difference in the percentage of anal sphincter injury in each group as clarified in the table.

For the total number of patients, there was 2.9% of anal sphincter injury in those with normal perineum versus 36% in those with tight perineum.

Table-5 shows distribution of perineal tears by the duration of 2nd stage of labour, the mean and standard deviation for each group and for the total number of patients.

There are significant differences between the three groups in the 3rd and 4th degree tears (p-value 0.017) and in the incidence of 1st and 2nd degree tears (p-value 0.000) by the effect of the duration of the 2nd stage.

There are no significant difference between the incidence of 3rd, 4th degree tears and 1st, 2nd degree tears in the 1st group (p-value 0.0612) and in the 2nd group (p-value 0.0584) and in the 3rd group (p-value 0.1189). But there is a significant difference in the incidence of 3rd, 4th degree tears and 1st, 2nd degree tears in the total number of patients (p-value 0.036)

Figure-2: Shows mean of the length of 2nd stage of labour in women with anal sphincter injury, the mean was 59 minutes for the 1st group, 49.56 minutes in the 2nd group and 48.33 minutes in the 3rd group and there is a significant difference between the three groups by the effect of length of 2nd stage on the incidence of anal sphincter injury (p-value 0.017).

Table-6: shows distribution of perineal tears by weight of the baby, perineal tears are divided into two groups' 3rd, 4th degree tears and 1st, 2nd degree tears.

The mean of weight of babies, standard deviation for each group and for the total number of patients. There is a significant difference in the incidence of the 3rd and 4th degree tears (p-value 0.017) and in the incidence of the 1st and 2nd degree tears by the effect of the weight of the baby (P-value 0.045).

SELECTIVE OR ROUTINE EPISIOTOMY

Table 1: Clinical data of the studied groups

	Group I n=100	Group II n=100	Group III n=100	P value
Age (years)				
Mean	22.8	23.67	22.61	0.115
SD	3.37	4.38	3.66	
Min.	15	16	16	
Max.	31	37	29	
State of perineum.				
Normal	92	90	93	0.737
Tight	8	10	7	
2 nd stage of labor (Min)				
Mean	45.65	55.20	50.30	0.041
SD	11.18	9.28	10.91	
Min.	15	20	25	
Max.	60	60	90	
Occipito-posterior Position	1	0	1	0.968
Yes	99	100	99	
No				
Wt. of baby (Kg)				
Mean	3.36	3.14	3.09	0.000
SD	0.40	0.23	0.31	
Min.	2.25	2.70	2.50	
Max.	4.20	3.90	4.10	
Anterior vaginal wall tear				
Yes	1	8	4	0.021
No	99	92	96	

Table 2: Perineal tears in the studied groups

Groups	Degree of perineal tear						P value
	Anal sphincter 3 rd & 4 th degree tear		Non-anal sphincter 1 st & 2 nd degree tear		Total		
	No.	%	No.	%	No.	%	
I	8	8	11	11	19	19	0.105
II	7	7	19	19	26	26	
III	2	2	16	16	18	18	
Total	17	5.67	46	15.33	63	21	
P value	0.045		0.344		0.404		

Table 3: Distribution of anal sphincter tears by age

Age	Perineal tear						Total	P value
	Group I		Group II		Group III			
	No.	%	No.	%	No.	%		
≤25	63	3 4.76	67	3 4.47	58	1 1.72	188	7 3.72
≥26	37	5 13.51	33	4 12.12	42	1 2.38		
Total	100	8	100	7	100	2	300	17

SELECTIVE OR ROUTINE EPISIOTOMY

Table 4: Distribution of anal sphincter tears by state of perineum

State of perineum	Perineal tear						Total No. tear	%	P value
	Group I		Group II		Group III				
Normal	92	4	4.34	90	4	4.44	93	0	0
Tight	8	4	50	10	3	30	7	2	28.57
Total	100	8		100	7		100	2	

Table 5: Distribution of anal sphincter tears by duration of 2nd stage

duration of 2 nd stage		Perineal tear				Total	P value
		Group I		Group II			
3 rd & 4 th degree tear	Mean	59.00		49.56		48.33	0.017
	SD	18.84		11.65		10.61	
1 st & 2 nd degree tear	Mean	45.63	10.06	41.46	8.25	37.69	0.000
	SD					11.96	
P Value		0.1189		0.0584		0.0612	0.0036

Table 6: Distribution of anal sphincter tears by wt. of baby

wt of baby		Perineal tear				Total tear %	P value
		Group I		Group II			
3 rd . & 4 th . tear	Mean	3.59		3.26		3.48	0.017
	SD	0.59		0.30		0.39	
1 st . & 2 nd . tear	Mean	3.33	0.37	3.12	0.21	3.07	0.045
	SD					0.28	
P Value		0.2532		0.1918		0.0760	0.009

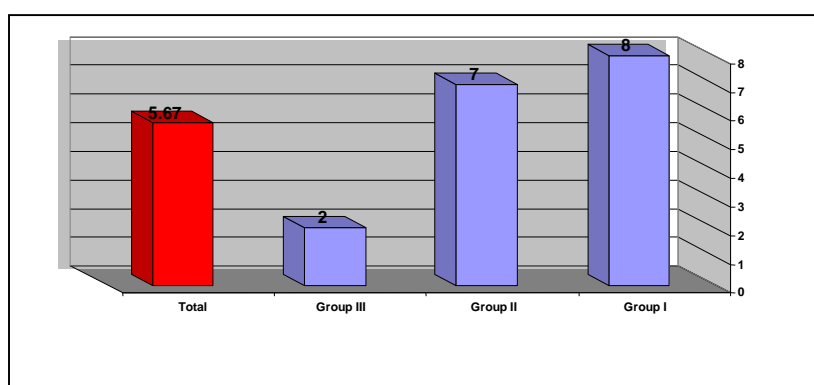


Fig. 1: Incidence(per 100) of anal sphincter injury

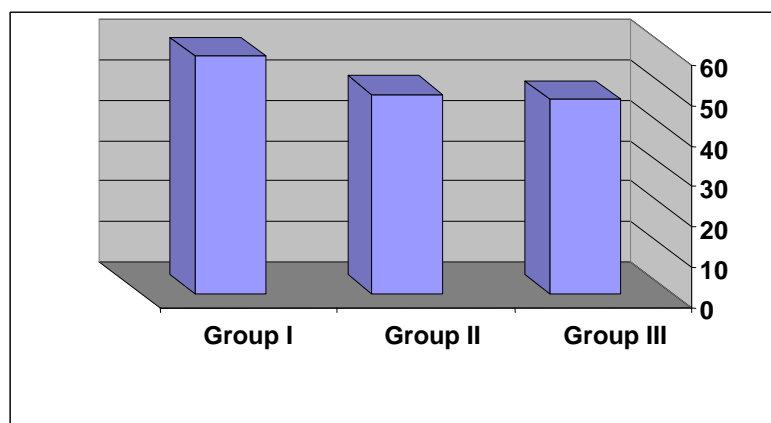


Fig. 2: Mean of length of 2nd. stage in women with sphincter injury

DISCUSSION:

The incidence of anal sphincter injury is shown to be higher in those in whom episiotomy was done routinely (8%), while those in whom episiotomy was done selectively according to the criteria of the state of perineum, size of the baby and length of second stage, have lower incidence (2%), (p-value 0.045), this shows that selective policy is more useful than routine intervention. These results go with lede RT. et al study who reported that the incidence of anal sphincter injury was 5.6% for routine use of episiotomy and 0% for selective use of episiotomy⁽¹³⁾ While Hartmann K. et al stated that, episiotomy may not prevent perineal tears. In fact, deep tears almost not occur in the absence of episiotomy.⁽¹⁴⁾ this statement supported by Repka JT. et al⁽¹⁵⁾, Casey BM. et al⁽¹⁶⁾, moreover Bonnie D. stated that episiotomy can significantly increase risk of anal sphincter tears rather than reducing this complication.⁽¹⁷⁾

All these studies agree that routine episiotomy is not justified, while selective episiotomy has more protective effect on anal sphincter. In this study the length of second stage shows a significant effect on the incidence of anal sphincter injury, as the longer the duration of the 2nd stage the more occurrence of 3rd and 4th degree tears (p-value 0.017), this goes with Stepp KJ. et al⁽¹⁸⁾, who reported that delivery in the second hour of second stage of labour is associated with more anal sphincter injury than delivery in the first hour, but unlike Sultan AH. et al, who reported that the length of second stage of labour has no significant effect on the incidence of anal sphincter injury⁽¹¹⁾

Our study shows the mean time of the 2nd stage was 59 min. in those routine episiotomy, compared to 49.56 min. for those without episiotomy, while it was 48.33 min. in selective episiotomy group. This indicates that the selective episiotomy group was associated with shorter 2nd stage and have lower incidence of anal sphincter injury, and this highlights that episiotomy has no significant protective effect on anal sphincter.

While weight of the baby had a significant effect on the incidence of anal sphincter injury, the heavier the baby the more incidence of anal sphincter injury, as the mean of weight of babies in those with routine episiotomy with anal sphincter injury, was 3.59, while in those with selective episiotomy was 3.48 and (p-value 0.017) and this goes with Rohna K. et al (7) and Stepp KJ. et al,⁽¹⁸⁾ unlike Sultan AH. who reported that weight of the baby had no significant effect on the incidence of anal sphincter injury.⁽¹¹⁾

Regarding age of the mothers there was no significant effect of women's age on the incidence of anal sphincter injury (p-value 0.772).

The percentage of women having anal sphincter injury was higher in older age group as (13.51%) versus (4.76%) for younger patients for group 1, and (12.12%) for older participants compared to (4.47%) for those who are younger in group 2, and (2.38%), versus (1.72%) for group 3. These results go with the study made by Marry P. et al who added that older primiparous women are at higher risk for severe lacerations (8)

SELECTIVE OR ROUTINE EPISIOTOMY

Regarding the incidence of anterior perineal injury there was a significant difference between the groups (p-value 0,021), as the incidence was 1% for those with routine episiotomy versus 8% for those without episiotomy versus 4% for selective episiotomy, so episiotomy has some protective effect on the occurrence of anterior perineal trauma, this in agreement with a study reported by Repke JK. ⁽¹⁵⁾

CONCLUSION:

Selective episiotomy is more useful intervention than routine episiotomy in protecting the anal sphincter when delivering a primiparous lady.

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