

The Safety of Selective Episiotomy Compared to Routine Episiotomy During Vaginal Birth in Primigravida in Cairo University Hospitals

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ABSTRACT

Background: Episiotomy is a surgical procedure that can result in postpartum hemorrhage, perineal pain, and dyspareunia. Moreover, episiotomy is not totally protective against severe perineal lacerations or maternal and neonatal morbidity; thus, its benefit in reducing the occurrence of severe perineal tears has to be investigated.

Objectives: We aimed to assess the pros and cons of a policy of selective episiotomy (only if needed) compared with a policy of routine episiotomy (part of routine management) for vaginal births.

Methodology: Nulliparous women in the active phase of labor with gestational age 37-41 and a single viable fetus with vertex presentation attending the Obstetrics and Gynecology Emergency Department, Kasr Al Aini Cairo University Hospital were included. One hundred and twenty laboring women were divided into 2 groups. Group A: Conducting routine episiotomy and Group B: Conducting selective episiotomy.

Results: There was no significant difference between the groups regarding the incidence of perineal tears and obstetrical anal sphincter injuries (OASIS).

Conclusion: In comparison to conventional episiotomy, selective episiotomy is equally risky for severe perineal/vaginal trauma. In Egypt, obstetric and tertiary care establishments may recommend selective episiotomy. Regarding the volume of intrapartum blood loss, selective episiotomy is superior to routine episiotomy.

Keywords: Episiotomy, Labor, Perineal Tear, Postpartum Hemorrhage, Obstetrics

INTRODUCTION

The most frequent obstetric procedure is episiotomy⁽¹⁾.

Episiotomies come in at least three different varieties (midline, mediolateral, and lateral) and have numerous causes⁽²⁾. In circumstances of impending fetal distress, an episiotomy may be performed to hasten the second stage of labor for the benefit of the fetus. The reasons for conducting an episiotomy for the mother include preventing anal sphincter lacerations, protecting the vagina, and relaxing the pelvic floor⁽³⁾.

Primiparous women are thought to require episiotomies more frequently than multiparous women do, and aided vaginal births are linked to more episiotomies than natural births⁽⁴⁾.

An episiotomy may deepen and become one of the following types of tears⁽⁵⁾:

- 1- Only tears involving vaginal mucosa or perineal skin.
- 2 -Tears involving muscles of the perineum.
- 3 -Involvement of anal sphincters, that is furtherly divided into:
 - 3a. < 50% involvement of the external anal sphincter.
 - 3b. > 50% involvement of the external anal sphincter.
 - 3C. Involvement of internal anal sphincter.
- 4 -Extension of tears through the anal epithelium.

According to estimates, 35% to 75% of women who give birth vaginally will experience a perineal tear⁽⁶⁾. The importance of these perineum rips varies on their severity. They may have short-, medium-, or long-term effects. The most severe type, known as obstetrical anal

sphincter injury (OASIS), affects between 0.8 and 5.9 percent of women who give birth vaginally⁽⁷⁾.

Episiotomy rates in different departments should be approximately 10%, as per the World Health Organization, which is now the case in many European nations. When determining whether the operation is needed, obstetricians should be encouraged to apply their clinical judgment. Episiotomy is not yet recognized to be necessary in any circumstance in obstetric practice because there are no clinical data supporting its justification⁽⁸⁾.

The ability of episiotomy to prevent or reduce the occurrence of severe perineal tears has generated debate⁽⁹⁾.

Episiotomy was a common obstetric procedure in the 1990s and was carried out in approximately half of vaginal deliveries in high-income nations⁽¹⁰⁾. Since then, strong data have demonstrated that a routine episiotomy policy was not relevant, was not protective against severe perineal tears or maternal and newborn morbidity and was not superior to a selected policy⁽¹¹⁾. Episiotomy may also be linked to sexual dysfunction, perineal discomfort, and postpartum hemorrhage⁽¹²⁾.

As a result, the use of episiotomies has reduced globally, and a restrictive approach has been pushed. However, selective episiotomy is still not widely practiced in our hospital. Therefore, we aimed to assess the effects of a policy of selective episiotomy (only if needed) compared with a policy of routine episiotomy (part of routine management) for vaginal births on mothers and babies.

PATIENTS AND METHODS

Study population

Nulliparous women in the active phase of labor with body mass index (BMI) < 35 and with gestational age 37-41 and a single viable fetus with vertex presentation attending the Obstetrics and Gynecology Emergency Department at Kasr Al Aini Cairo University Hospital from December 2021 to June 2022.

Women with antepartum hemorrhage, when caesarean section is indicated, e.g., cephalopelvic disproportion, none reassuring cardiotocography (CTG), active phase arrest, women in which operative vaginal delivery is conducted, medical comorbidities, e.g., hypertension and diabetes mellitus, were excluded from the study. We also excluded women with friable vaginal mucosa due to the presence of vaginal infection or due to prolonged second stage of labor and women with narrow introitus due to female genital mutilation.

Ethical considerations:

The study was conducted in accordance with the Helsinki Declaration and World Health Organization's ethical standards for human studies. The Research Ethics Committee of Kasr Alainy-Cairo University approved the study protocol (IRB: MS-627-2021). All women were given a clear and lay Arabic explanation of the study before enrolment, and all participants gave their informed consent.

Study setting and measurements

A random list of numbers generated by random allocation software was used for assigning eligible patients to either a protocol of routine episiotomy or a protocol of selective episiotomy. Patients (n=120) were allocated to Group A: Control group, performing routine episiotomy (n=60) or Group B: Intervention group, performing selective episiotomy (n=60). All patients with episiotomy in either the routine or selective group were subjected to mediolateral episiotomy performed under local infiltration anesthesia using 5 ml of lidocaine HCl 2%, (Debocaine™), Chemicals Company for El-Debeiky Pharma, Egypt.

During the second stage of labor, the parturient women were allowed to push only during uterine contractions and to rest in between contractions until crowning occurred under aseptic conditions, and the use of lubricant ultrasound gel was allowed. For the experimental group, the obstetric residents were instructed to allow delivery of fetal head without use of episiotomy except in selected cases in which clinical judgement would necessitate the procedure. On the other hand, episiotomy was performed as a routine procedure by the obstetric residents in the control group. After fetal delivery and placental separation, formal examination of the birth canal was performed, and the presence of any laceration away from the episiotomy

site was noted. We used the following formula for measurement of the amount of blood lost from the birth canal: $(EBL=EBV \times \text{pre-labor hematocrit} - \text{post-labor hematocrit} / \text{prolabor hematocrit})^{(13)}$, where EBV is the estimated blood volume in ml and equals bodyweight in kg \times 85. The degree of perineal involvement was noted and graded in both groups, and the frequency of episiotomy in the selective group was recorded. Suturing of episiotomy and any lacerations that may occur was performed by a continuous suturing technique using 2 – 0 polyglactin 910 (EGYSORB™) TAISIER-MED, Egypt.

Sample size:

The Open Epi 2.3 (Atlanta, GA) was used for sample size calculation, with an expected rate of episiotomies in the protocol group of not conducting episiotomies of 1% compared to a rate of 10% in the group of selective episiotomies from the previously published study⁽¹⁴⁾. 100 women would be required to randomize for a power of 80% and a confidence level of 95%; however, this number has been increased by 20% to account for potential losses after randomization.

Statistical Methods

The statistical package for the social sciences (SPSS) version 28 was used to code and enter the data (IBM Corp., Armonk, NY, USA). For quantitative variables, the mean and standard deviation were used to summarize the data, and for categorical variables, frequencies (the number of cases) and relative frequencies (percentages) were used. An unpaired t test was used to compare the two groups. The Chi square was used to compare categorical data. When the anticipated frequency was less than 5, an exact test was utilized in its place. Statistics were considered significant for P values under 0.05.

RESULTS:

There was no significant difference between the groups regarding age, gestational age, or body mass index (Table 1).

Table (1): Demographic data of study population

	Routine episiotomy	Selective episiotomy	P value
	Mean±SD	Mean±SD	
Age	25.08 ±5.07	24.87 ±4.70	0.809
GA (weeks)	38.55 ±1.26	38.10 ±1.45	0.070
BMI	28.71 ±3.30	27.48 ±4.63	0.096

SD: standard deviation, GA: gestational age, BMI: body mass index.

The first stage of labor was managed as usual, and there was no significant difference between the groups regarding prelabor blood pressure, pulse, temperature, or respiratory rate. Additionally, no significant difference was found between the groups regarding fundal level and prelabor hematocrit level. Furthermore, there was no significant difference between the groups regarding the incidences of perineal tears and obstetrical anal sphincter injuries (OASIS) (Table 2).

Table (2): Comparison between both study groups regarding incidence of perineal tear and OASIS

		Routine episiotomy	Selective episiotomy	P value
		Count (%)	Count (%)	
Perineal tear	Yes	11 (18.3%)	18 (30.0%)	0.136
	No	49 (81.7%)	42 (70.0%)	
OASIS Degree	3A	1 (1.7%)	3 (5.0%)	0.854
	3B	2 (3.3%)	1 (1.7%)	
	3C	1 (1.7%)	1 (1.7%)	
	No	56 (93.3%)	55 (91.7%)	

OASIS: Obstetrical Anal Sphincter Injuries.

The amount of blood loss was significantly lower among females in the selective episiotomy group than among females in the routine episiotomy group. Otherwise, there was no significant difference between the groups regarding the duration of the 2nd stage of labor or neonatal APGAR score at one and five minutes (Table 3).

Table (3): Comparison between both study groups regarding blood loss at delivery, duration of the second stage of labor, and APGAR score at one and five minutes

	Routine episiotomy	Selective episiotomy	P value
	Mean±SD	Mean±SD	
Post-labor hematocrit (%)	35.44 ±3.74	35.09 ±1.85	0.511
Blood loss amount (cc)	289.68 ±98.05	223.62 ±111.94	0.001*
2 nd stage duration (min)	46.57 ±12.09	49.55 ±8.42	0.119
APGAR 1	7.33 ±0.90	7.12 ±0.90	0.190
APGAR 5	9.52 ±0.65	9.43 ±0.70	0.500

SD: standard deviation, cc: cubic centimeter, min: minutes, APGAR: Appearance, Pulse, Grimace, Activity, and Respiration, APGAR 1: APGAR score at one minute, APGAR 5: APGAR score at five minutes, *: Significant

There was no significant difference between the groups regarding the need for perineal suturing. Among females in the selective episiotomy group, 15 (25%) females needed episiotomy, while among females in the routine episiotomy group, extension of episiotomy occurred in 5 (8.3%) females.

DISCUSSION

When the fetal head is delivered via vaginal expansion, the tissue around the vagina and occasionally the rectum may become torn. Surgery should be used to fix these tears, although healing takes time. In some countries, episiotomy is utilized as standard medical procedure during deliveries. Episiotomy is considered a second-degree perineal tear that require repair and may result in excruciating pain, bleeding, infection, and dyspareunia⁽¹¹⁾. It was the time to refine the routine utilization of episiotomy, so several studies investigating the limited use of episiotomy have demonstrated that, in terms of the danger of posterior wall lacerations and needless perineal lacerations, selective episiotomy was preferable to standard episiotomy⁽⁹⁾. However, there was a rise in the frequency of severe perineal lacerations in areas where a noticeable drop in the rate of episiotomy was achieved⁽¹⁵⁾.

In our study, there was no significant difference between the groups regarding the incidence of perineal tears (18.3% in the routine episiotomy group vs 30.0% in the selective episiotomy group). To prevent perineal lacerations in the selective episiotomy group, we used ultrasound gel as a lubricant. Additionally, clear instructions were given to the parturient women to bear down with contractions only and to rest in between until crowning occurred.

According to **Jiang et al.** Cochrane analysis, which supports the findings of our study, standard episiotomy is ineffective at lowering the risk of perineal and vaginal damage because women who underwent selective episiotomy were 30% less likely to sustain severe perineal/vaginal trauma. This does not, however, spell out precise guidelines for when selective episiotomy should be carried out. Additionally, having an episiotomy after the initial vaginal delivery increases the chance of a spontaneous obstetric laceration during the subsequent delivery. The same Cochrane review recommends the use of selective episiotomy in operative vaginal deliveries and yet points out that the procedure's actual effectiveness for such patients should be proven by further research studies⁽¹¹⁾.

In contrast, previous studies by **Hauck et al.** reported that routine episiotomy, especially when performed during an operative delivery, was protective in primiparas⁽¹⁶⁾. The difference can be attributed to the inclusion of operative delivery in the **Hauck's** study. Additionally, **Räisänen et al.** discovered that serious perineal lacerations were more common in areas where

a noticeable decrease in the prevalence of episiotomy had been attained⁽¹⁷⁾.

However, **Islam et al.** and **Sulaiman et al.** confirmed that selective episiotomy has more benefits than routine episiotomy, as they found that perineal tears, pain at the perineum and dyspareunia were much more common in the routine episiotomy group. This finding should encourage obstetricians to further restrict the use of routine episiotomy^(18,19).

Furthermore, international health organization affirms the need for limited use of routine episiotomy⁽²⁰⁾, since it has been proven to be associated with complications such as perineal trauma, as reported by **Stedenfeldt et al.**⁽²¹⁾ and wound dehiscence, as reported by **Alperin et al.**⁽²²⁾. For those reasons, they recommend selective episiotomy over a routine approach.

According to our study, no significant difference was found between the groups regarding the incidence of obstetrical anal sphincter injuries (OASIS) (8% in the routine episiotomy group vs 10% in the selective episiotomy group). Grade 3A was the most common grade OASIS, while grade 3C was the least common grade OASIS among our patients.

Räisänen et al. found that whereas OASIS incidence increased in women who had episiotomies, it dropped in women who delivered without them⁽¹⁷⁾.

According to our study, no significant difference was reported between the selective and routine episiotomy groups regarding the need for perineal suturing for tears (other than suturing for episiotomy).

In contrast, **Sangkomkamhang et al.** reported that the requirement of suturing was lower in the selective episiotomy group⁽²³⁾. The difference can be attributed to the larger sample size in **Sangkomkamhang's** study (3006 women).

The amount of blood loss from episiotomy and lacerations in our study was significantly lower among females in the selective episiotomy group than among females in the routine episiotomy group. However, there was no significant difference between the groups regarding post labor hematocrit values.

In concordance with our findings, **Gu et al.** reported that the incidence of postpartum hemorrhage was significantly lower among females in the selective episiotomy group than among females in the routine episiotomy group (1.65% vs 3.52%; $P < 0.05$)⁽¹⁵⁾. In contrast, the rates of postpartum hemorrhage among women undergoing selective episiotomy in **Sangkomkamhang's** study were similar to those in the routine episiotomy group⁽²³⁾.

Episiotomy was thought to shorten the time of the second stage, but it had no significant consequences on the baby. In our study, no significant difference was found between the groups regarding the duration of the 2nd stage of labor.

In agreement with our study, the duration of the 2nd stage of labor in the **Thakur** study was slightly

longer in the selective episiotomy group, but there was no significant difference⁽²⁴⁾.

Similarly, we found no significant difference between the groups regarding neonatal APGAR scores at 1 and 5 minutes. In a study performed by **Gu et al.**, they found no significant difference between both groups regarding neonatal APGAR scores at 5 minutes. However, **Gu et al.** reported that newborns in the selective episiotomy group had a lower risk of neonatal ward admission⁽¹⁵⁾. **Coutada et al.** found that the selective use of episiotomy was not associated with differences in neonatal morbidity. Thus, the routine practice of episiotomy showed no benefits⁽²⁵⁾.

In the selective episiotomy group, the frequency of episiotomy among women was 25%, as 15 patients needed episiotomy. In **Yamasato's** study, retrospective analysis of vaginal births at a tertiary care maternity hospital over a period of five years with restricted episiotomy, 22,800 births with 23,016 newborns took place. The rate of episiotomies was 6.7%. Midline and mediolateral episiotomies were linked to a higher incidence of maternal injury⁽²⁶⁾.

In the routine episiotomy group in our study, 5 (8.3%) females needed extension of episiotomy. A higher incidence of episiotomy extension was observed by **Venus et al.** episiotomy extension was reported in 26% of patients who underwent standard episiotomies, and it took the form of apex extension, muscle, or mucosa extension, or both⁽²⁷⁾. There were no third- or fourth-degree tears noted, and the episiotomy wounds were only visible up to the muscle.

CONCLUSION

In comparison to conventional episiotomy, selective episiotomy is equally risky for severe perineal/vaginal trauma. In Egypt, obstetric and tertiary care establishments may recommend selective episiotomy. Regarding the volume of intrapartum blood loss, selective episiotomy is superior to routine episiotomy.

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