

PREVALENCE AND FACTORS ASSOCIATED WITH PRACTICE OF EPISIOTOMY AT A MATERNITY SCHOOL IN RECIFE, PERNAMBUCO, BRAZIL

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ABSTRACT

OBJECTIVE. To determine the prevalence and factors associated with practice of episiotomy at a maternity school in Recife, Pernambuco, Brazil.

METHODS. A retrospective cross-sectional study was carried out from January to December 2006 with 495 women (out of a total population of 2,564) who had a normal delivery at the Maternidade Professor Monteiro de Moraes at the Centro Integrado de Saúde Amaury de Medeiros (Integrated Health Center Amaury de Medeiros - CISAM), Universidade de Pernambuco. Assessed factors were issues preceding birth, characteristics of labor and perinatal outcome. To verify the association between predictors and performance of episiotomy the Chi square, Fisher's exact and Student's t tests were used, when appropriate, with a significance level of 5%. The prevalence ratio and confidence intervals were calculated at 95%, in addition to logistic regression analysis.

RESULTS. Prevalence of performing episiotomy was 29.1% (n = 144). After bivariate analysis, we found a significant association of episiotomy with adolescence (PR 1.74; CI95% 1.33-2.28), age over 35 years (PR 0.35; CI95% 0.14-0.90), primiparity (PR 4.73, CI95% 3.33-6.71), absence of previous vaginal delivery, a group including, in addition to primiparous patients, those who had cesarean delivery in previous gestation (PR 5.44; CI95% 3.67-8.06) and related diseases at the time of delivery (RP 1.71, CI95% 1.30-2.25). There was no significant relation with gestational age at delivery, duration of labor over 6 hours (mean time of the active phase of labor), expulsion period of more than 30 minutes (considered as prolonged), use of misoprostol or oxytocin, abnormal fetal heart rate, presence of meconium, shift of delivery completion (night or day), rate of Apgar score in 1 and 5 minutes and weight of the newborn. Presence of perineal lacerations was higher in the group not subject to episiotomy, however only 1st and 2nd degree lacerations were described. After logistic regression, the analyzed remaining factors associated with episiotomies were maternal diseases (RA 1.99, CI95% 1.20-3.28) and absence of previous vaginal delivery (9.85 RA, CI95% 6.04-16.06).

CONCLUSION. Prevalence of episiotomies in the institution was 29%. Variables that remained related to episiotomy were maternal diseases and absence of previous vaginal delivery.

KEY WORDS: Episiotomy. Natural childbirth. Perineum.

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INTRODUCTION

Episiotomy is defined as perineum enlargement, surgically performed, with incision during the second period of labor, with a scissor or a scalpel blade and requiring suture for its correction.¹ Routine performance of episiotomy was recommended in the past with the aim of preventing damages to the pelvic floor, because this was believed to reduce the incidence of genital dystopias, in addition to protecting the anterior perineum and shortening the expulsion period.² Benefits for the fetus were also reported, such as reducing cephalic pole compression in the delivery channel,

which could bring about cerebral damages, mainly in premature and macrosomic fetuses.²

Episiotomy was originally recommended to help in laborious deliveries and its routine performance began to be defined by Pomeroy in 1918. During many years this routine practice was accepted and taught as an absolute truth in big obstetrics services, although not based on well conducted and controlled studies. From the 1970s on the first consistent clinical tests were published, questioning the value of this procedure.

In the last years, many studies, reviews and meta-analyses have evidenced that there is no scientific basis for maintaining the

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systematic practice of episiotomy.³ In fact, it is admitted that its performance brings about an increase of intra and post-operative complications, suggesting its practice to be restricted to selected patients.³ It is important to highlight that, even with indications restrained, there is no consensus on what they would be, and it is suggested that new randomized studies be carried out to elucidate these questionings.³

It is important to highlight that, as any surgical procedure, episiotomy is also responsible for complications, such as perineum lesion extension, hemorrhage, edema, infection, hematoma, dyspareunia, rectovaginal fistulas, myonecrosis, neonatal intoxication from lidocaine, hypersensitivity reactions to anesthetics, endometriosis in the scar, need of surgical correction due to irregular or excessive cicatrization problems, pain after delivery or maternal rejection of the newborn due to pain.^{1,3} Analgesia performance could soften the pain during and after delivery.⁴ However, a study suggests that analgesia could increase the need of episiotomy.⁵

The main support for routine and broadly diffused performance of episiotomy was protection of the perineum in expulsive period. It is believed that incision hindered the disruption of muscle fibers that compose the pelvic floor. This is the greatest misconception related to episiotomy. Perineotomy damages muscle, nervous tissue, vases, mucosa and skin. Therefore, a procedure once believed to be protective is actually, in itself, a second degree lesion.¹ Spontaneous lacerations, when routine episiotomy is performed, are of low degree most of the times. They damage only skin and mucosa; present a faster cicatrization and less complications.³

Despite current recommendations against routine use of episiotomy, its incidence is still high. In the United States of America (USA), a study has evidenced a decline of 60.9%, in 1979, to 24.5%, in 2004,⁶ but it is estimated that in Brazil it is performed in approximately 94% of vaginal births.⁷ There is still no consensus on the ideal percentage, but when restricted to indications, it is suggested that 20% is a reasonable percentage.⁸

Since 2002 selective episiotomy became normal at the Maternidade Professor Monteiro de Moraes, in Recife, state of Pernambuco, Brazil, indicated in pregnant patients with acute fetal distress and inadequate progress of labor. In this study episiotomy prevalence in 2006 was assessed, in addition to the factors associated to its indication. Thus, more effective actions could be objectively promoted in searching for the reduction of its frequency, providing a clinical practice based on scientific evidence.

METHODS

A retrospective cross-sectional study was conducted in the period of January to December, 2006, in the Maternidade Escola Prof. Monteiro de Moraes at the Centro de Saúde Amaury de Medeiros (CISAM). The institution is an important teaching center for medicine students at undergraduate and residency levels in obstetrics and nursing, of the Universidade de Pernambuco (UPE), which performs about 4,000 births per year.

The only inclusion criterion for this study was that the subjects should be pregnant women submitted to vaginal delivery in this institution during the period studied. Patients with fetal death

preceding labor and fetuses with weight equal to or lower than 500 grams. In the period studied, 2,564 were included in the study due to being submitted to vaginal birth. A sum of 495 patients were randomly and systematically chosen, based on the list of pregnant women registers in the period studied, one patient was chosen among each four medical files until the targeted sample was completed, therefore, the whole period was well represented.

Variables assessed were, besides episiotomy performance, aspects preceding delivery: maternal age, forward categorized in adolescents (younger than 20 years old) and maternal age equal to or over 35 years, parity, previous normal birth, presence of hypertensive syndromes, clinical or gestational diabetes. Labor characteristics: gestational age at birth, labor duration (over six hours - mean time of active phase of labor), expulsion period (more than 30 minutes), use of misoprostol or oxytocin at labor, alterations in fetal heart frequency (bradycardia, slowdowns or tachycardia), presence of meconium, birth performance shift (night or day). And perinatal results: Apgar score rate in the first and fifth minutes, newborn's weight, and presence of perineal lacerations. In the sample studied the occurrence of forceps delivery was not evidenced.

At CISAM, there is no orientation related to perineal exercises for preventing lacerations during pre-natal period, or formal criteria for episiotomy indication. During expulsion period of labor the assistant physician is responsible for the completion (or not) of the procedure, with existing recommendations from the service that they should be performed only when necessary. Updating courses and discussions to health professionals were promoted aimed at clarifying the new guidelines of birth assistance. It should be highlighted that mediolateral episiotomy was performed in all the patients and that in a previous study the main indications for selective episiotomy referred by assistant physicians were primiparity, fetal macrosomia and prematurity.⁹

Lacerations occurred were corrected through simple suture of the lesion, with no existing 3rd and 4th degree lacerations. Moreover, no patient was submitted to birth analgesia and no neonatal deaths occurred during hospitalization.

Data were collected by researchers, through a specific formulary, in the institution's medical files. The research began only after the project's approval by the CISAM's Research Ethics Committee (CEP n.058/06 Recife, 12/12/2006).

Statistic analysis was performed with the public domain software epi-info version 3.5. To describe the sample's characteristics, central-trend measurements and dispersion were used, in addition to frequency distributions. To determine the association between predicting (independent) variables and episiotomy performance (dependent variable), Chi square, Fisher's exact tests were used when appropriate to a 5% significance level. Prevalence ration (PR) was calculated with a 95% confidence interval. From a previously established randomness model, independent variables which presented a 20% significance level for multivariate analysis were selected. A multiple stepwise logistic regression analysis, evidencing, for the final model, variables that remained associated with the outcome.

RESULTS

Prevalence of episiotomy performance found in the sample studied was 29.1% (CI95% 25.2% - 33.3%). For studying factors associated with episiotomy the sample was divided into two groups: those with (n=144) and those without (n=351) episiotomy. Furthermore, variables were characterized as pre-labor, during labor and post-labor, including perinatal results.

Maternal age varied between 12 and 43 years, with an average of 21.3 ± 5.4 years, in the patients who had episiotomy, and of 24.7 ± 6.7 years, in those without episiotomy ($p < 0.0001$). While in women who had or not episiotomy, mean gestational age at delivery was 38 ± 3 weeks and 37.5 ± 3.4 weeks ($p = 0.17$) and mean weight of newborns was $2,970.4 \pm 582.6$ grams and $2,873.0 \pm 732.2$ ($p = 0.15$), respectively.

Among characteristics that preceded birth, maternal age extremes were associated with episiotomy. In the patients who had episiotomy a frequency of 42.6% of adolescents was found, in comparison with 27.6% in those without episiotomy, representing 74% more risk of having episiotomy, which is a statistically significant difference. While the possibility of being submitted to episiotomy was statistically lower among parturients with age equal to or higher than 35 years (2.8% compared to 9.4% without episiotomy) (Table 1).

In relation to other characteristics preceding birth, primiparity, absence of vaginal delivery in prior gestations, and associated diseases at birth (clinical or gestational diabetes and hypertensive syndromes). It is highlighted that among associated maternal diseases, hypertensive syndromes were those showing higher prevalence (21.6% of the total amount of patients), therefore significantly associated to episiotomy (Table 1).

No association was observed in relation to variables analyzed, as expulsion period duration, labor, use of oxytocin and misoprostol, alterations in fetal cardiac frequency, elimination of meconium and delivery occurring at night shift. The groups did not present significant difference related to premature births (below 259 days or 37 weeks) and post-datism (over 294 days or 42 weeks) (Table 2).

It was also observed that the absence of episiotomy was not associated with adverse perinatal results, such as Apgar score below 7 in first and fifth minutes, low weight (below 2,500 grams) and macrosomic (over 3,999 grams) newborn. In relation to perineal laceration frequency, in patients who had no episiotomy it was significantly higher (46.7%) if compared to those who had the procedure (6.3%); in other words, the risk of laceration is seven times higher for patients who had no episiotomy. However, no 3rd or 4th degree laceration cases, considered more severe, were identified (Table 3).

After logistic regression analysis, variables which remained associated to episiotomy were maternal diseases and absence of previous vaginal birth, as a statistically significant constant (Table 1).

DISCUSSION

The prevalence of episiotomy observed was much lower than national average, which has reached 94%,⁷ but still over what is recommended by the World Health Organization, around 10%.¹⁰ Implementation of continuous medical education, as well as disclosure of reviews and meta-analyses on the theme,^{1,5,6,8} showed an influence on the reduction of this rate. A study conducted in the United States has evidenced a decline of 60.9% in 1979 for 24.5% in 2004.⁶ At Prof. Monteiro de Moraes maternity hospital, where the study was conducted in 2003, before the implementation of selective episiotomy norms, the frequency of episiotomy performance was around 46%.¹¹ So in three years of implementation a reduction of more than 1/3 of this frequency took place.¹¹

After bivariate analysis, it was observed that the adolescents' group had a 74% higher risk of having episiotomy in pregnant patients submitted to vaginal delivery, similar to another study which has assessed gestation in adolescents in compared to adult patients.¹² The authors have evidenced a 63.7% incidence of episiotomy performance in adolescents versus 47.9% in adult women, which is a statistically significant difference.¹² It is suggested that adolescent patients' perineum presents a tenser

Table 1 – Pre-birth features associated with episiotomy at Maternidade Prof. Monteiro de Moraes, Recife, Pernambuco, Brazil, 2006

Features	Episiotomy				PR	CI 95%	p**
	Yes (N=144)		No (N=351)				
	n	%	n	%			
Adolescents (≤ 19 years)	66	46.2	97	27.6	1.74	1.33 - 2.28	< 0.0001
Maternal age ≥ 35 years*	4	2.8	33	9.4	0.35	0.14 - 0.90	0.01
Primiparous	112	77.8	98	28.0	4.73	3.33 - 6.71	< 0.0001
Associated disease	48	33.3	64	18.2	1.71	1.30 - 2.25	0.0002
Hypertension syndromes	45	31.3	62	17.7	1.65	1.24 - 2.18	0.0008
Absence of previous vaginal birth	119	82.6	112	31.9	5.44	3.67 - 8.06	< 0.0001

PR: prevalence ratio; CI: Confidence interval. * Absence of one patient's register. ** Chi square test

Table 2 - Features of labor associated with episiotomy at Maternidade Prof. Monteiro de Moraes, Recife, Pernambuco, Brazil, 2006

Features	Episiotomy				PR	CI 95%	p
	Yes (N=144)		No (N=351)				
	n	%	n	%			
Labor time \geq 360 min*	84	62.7	194	58.1	1.15	0.85 - 1.54	0.36***
Expulsion period duration > 30 min**	4	16.0	3	5	2.12	1.01 - 4.44	0.10****
Oxytocin use	53	36.8	126	35.9	1.02	0.77 - 1.37	0.85***
Misoprostol use	12	8.3	18	5.1	1.41	0.89 - 2.23	0.17***
FCF alteration	3	2.1	3	0.9	1.73	0.77 - 3.90	0.24****
Meconium presence	12	8.3	26	7.4	1.09	0.67 - 1.78	0.72***
Night birth (19h to 7A.M.)	69	47.9	176	50.1	0.93	0.71-1.23	0.65***
Premature birth	45	31.3	121	34.5	0.90	0.67 - 1.21	0.49***
Post-term birth	4	2.8	8	3.1	1.15	0.51 -2.59	0.48****

PR: prevalence ratio; CI: Confidence interval; FCF: Fetal cardiac frequency. * Absence of 27 patients' registers. ** Absence of 410 patients' registers. *** Chi square test
**** Fisher's exact test

Table 3 – Perinatal results associated with episiotomy at Maternidade Prof. Monteiro de Moraes, Recife, Pernambuco, Brazil, 2006

Associated factors	Episiotomy				PR	CI 95%	p
	Yes (N=144)		No (N=351)				
	n	%	n	%			
Apgar 1 st min \leq 7*	23	16.0	54	15.5	1.02	0.70 - 1.49	0.90***
Apgar 5 th min \leq 7*	2	1.4	10	2.9	0.56	0.16 - 2.01	0.27****
Low weight (Weight < 2.500g) **	31	21.7	82	23.4	0.93	0.67 - 1.31	0.69***
Macrosomia (Weight \geq 4.000g) **	4	2.8	7	2.0	1.26	0.57 - 2.79	0.40****
Presence of lacerations	9	6.3	164	46.7	0.12	0.06 - 0.24	< 0.0001***

PR: prevalence ratio; CI: Confidence interval. * Absence of three patients' registers. ** Absence of one patient's register. *** Chi square test **** Fisher's exact test

Table 4 – Multivariate analysis of factors associated with episiotomy at Maternidade Prof. Monteiro de Moraes, Recife, Pernambuco, Brazil, 2006

Variables	Adjusted risk	CI 95%	p
Maternal diseases	1.99	1.20 - 3.28	0.007
Absence of previous vaginal birth	9.85	6.04 - 16.06	< 0.0001
Constant	-	-	< 0.0001

CI: Confidence interval.

musculature than that of adult women, which could lead to the increase of release period for cephalic pole, inducing the assistant obstetrician to perform episiotomy. Other reasons frequently presented to explain this disparity are biological immaturity and the expectations of midwives and physicians about perineal protection attempt in particularly young pregnant women. No studies directed to assessing this psychological concept in health professionals or its consequences were found.^{12,13}

A similar justification might be suggested to primiparous parturients, out of which around $\frac{3}{4}$ were submitted to episiotomy, with a 5 times higher risk. Isolatedly, it can be suggested that primiparity was the factor which presented a higher association

for episiotomy performance, but it did not remain significant after multivariate analysis. A review conducted in the United States with 8,647 patients have shown 50% frequency of episiotomy in primiparous against 23% in secundiparous and multiparous women (OR=4.10), which was statistically significant¹⁴ and in accordance with our findings. The justifications for this high episiotomy index are not clear yet. In addition to perineal elasticity, the old recommendation of routine episiotomy in primiparous patients,² performed by many obstetricians, might still have an influence in the indication of this procedures for these patients. However, it is important to highlight that a systematic review supports this conduct.⁵ A randomized study has compared two groups of primiparous women with routine and selective episiotomy. It was evidenced that in the group with selective indication there was no episiotomy against 100% in the group with routine episiotomy, in addition to no significant difference observed in relation to perineal protection or perinatal results.¹⁵

The relation between forceps use and episiotomy performance could not be evaluated in this study, due to the non occurrence of surgical birth in the sample selected.

The presence of associated disease at birth was significantly associated with episiotomy performance, among which hypertensive syndromes, the more frequent diseases in our study, were highlighted. After multivariate analysis, adjusted risk was around two times for episiotomy performance. No studies assessing this association were found. Notwithstanding, it is believed that high risk gestations with associated diseases represent higher risk at birth, including a higher perinatal morbidity and mortality rate.¹⁶ So the assistant obstetrician may fear that not performing episiotomy represents a bad maternal assistance, supposing that its performance decreases delivery's duration. Particularly in patients with pregnancy hypertension syndrome, who presented a higher risk for after-birth complications, with hemorrhages, hematomas and infections.¹⁷

The absence of previous vaginal birth also showed to be a risk factor for episiotomy performance, suggesting that perineum, due to its elasticity, may be more prone to vaginal birth after the second birth. In this study a high association was found between the absence of previous vaginal birth and episiotomy performance, remaining significant even after multivariate analysis. Therefore at Prof. Monteiro de Moraes maternity hospital the absence of previous vaginal birth was the main factor associated with episiotomy, with an adjusted risk around twice higher.

Prolonged labor and expulsion period are associated with episiotomy; therefore its performance is recommended aiming at decreasing tocotraumatism and fetal distress.¹⁸ In this study labor over six hours (average for active phase of labor) and prolonged expulsion period (over 30 minutes) were assessed, with no significant association evidenced for the episiotomy performance.

However, there is an inherent difficulty in retrospective studies, in which there was under-registration of these data, with a loss of 27 (5.45%) patients, in relation to labor over six hours and 410 women (82%), related to prolonged expulsion period, which has probably influenced the results. A study assessing these variables found a statistically significant relation.¹⁸ However, even the affirmation that episiotomy shortens the expulsive period is questionable.¹⁹

The use of misoprostol and oxytocin did not present a higher risk for episiotomy performance, in spite of the supposed relation with preexisting diseases and prolonged labor. Misoprostol is used for inducing birth and most of the times in high risk gestations with associated disease, particularly pregnancy hypertension syndromes.²⁰ Oxytocin, on its turn, is frequently used for inducing and conducting labor.²¹ Probably due to the low frequency of patients using misoprostol included in this study, no association with episiotomy was found. In relation to oxytocin, the non-association with episiotomy may be related to its indiscriminate use, in an attempt to shorten the labor time, an observation already described in another study conducted in Brazil, which has encountered a high frequency of oxytocin use.²¹

During the construction of this research's causal model, the hypothesis that birth at night shift would be a risk factor for episiotomy was suggested. However, this hypothesis was not confirmed and no studies showing this association were found in literature.

The supposed benefits for the fetus of episiotomy include cranial protection, mainly for premature ones, reduction of perinatal asphyxia, better Apgar scores, lower fetal acidosis and reduction of complications in shoulders' dystocia.²² In relation to prematurity, there is no evidence that episiotomy is necessary for preventing fetal tocotraumatism. Contrarily, the use of episiotomy was associated with an increase in cutaneous contusions and abrasions and had no influence on birth conditions, such as Apgar score, fetal acidosis or admission in neonatal intensive care unit.²³

In the sample studied no association between episiotomy and signs of fetal distress (fetal cardiac frequency alteration and meconium elimination) during labor was found, and the newborns' birth conditions, assessed by Apgar score lower than 7 in the first and fifth minutes, which were also observed in a study assessing neonatal morbidity related to operative birth.²³ The association between episiotomy and perineal protection in operative births (forceps and extracting vacuum) is the object of other studies.^{17,18} However, in the sample studied, no births with the use of forceps were observed, due to their low incidence in the service. Sample size may imply a limitation for assessing some variables; this fact may be considered a limitation of the study.

Protection of pelvic floor integrity is without doubts the most common indication for episiotomy. First and second degree lesions are considered mild, easily corrected and healed and they do not cause a great damage to the puerperal patient, while those of third and fourth degree are classified as severe and may lead to urinary and fecal incontinence.¹⁹

Episiotomy performance in the first birth is a risk factor for the occurrence of spontaneous lacerations in subsequent births, as stated in a U.S. study (OR 4.47; CI95% 3.78-5.30), including third and fourth degree perineal lesions (OR 5.25; CI95% 2.96-9.32).²⁵ In our study it was not possible to assess episiotomy occurrence in previous births, due to the non-existence of registrations of this datum in the medical files. Yet, the frequency of lacerations was significantly higher in patients without episiotomy, mainly anterior perineum and furcula lesions. In the sample studied there were no reports of third and fourth degree lesions.

Other variables pertinent to the theme, such as post-operative pain, surgical site infection, hemorrhage, dyspareunia, urinary and fecal incontinence, factors related to later period of birth

could be assessed due to the study's design. Therefore, new prospective studies are recommended to determine risk factors associated with episiotomy performance, emphasizing its own complications.

The disclosure of episiotomy rates in health services with careful assessment of its indications aims at reducing it after restriction policies are implemented. This study evidences the importance of continuous medical education for the reformulation of old concepts. The decrease in frequency of episiotomy performance, in attendance to selective indications, brings us a great satisfaction as educators, and a great stimulus to keep seeking knowledge improvement, reflecting better health assistance. Therefore, in this service with a frequency of 29% of episiotomy, we should still encourage its selective performance, acting on associated factors that remain significant in our study, maternal diseases and absence of previous vaginal birth.

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