

Prevalence of episiotomy in primiparas, related conditions, and effects of episiotomy on suture materials used, perineal pain, wound healing 3 weeks postpartum, in Turkey: A prospective follow-up study

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ABSTRACT

Background: Despite current recommendations against routine use of episiotomy, its incidence is still high in Turkey. The study aimed to identify the prevalence of episiotomy in primiparas, related conditions, and effects of episiotomy on suture materials used, perineal pain, and wound healing 3 weeks postpartum.

Materials and Methods: This study was designed as a prospective follow-up study. Data were collected via a questionnaire form between March 2007 and February 2009 in Aydın Government Hospital, Turkey. Three hundred ninety-six primiparas were included in the study by convenience sampling.

Results: It was determined that 56.3% of the women had episiotomies. The results of the study revealed that the probability of receiving an episiotomy was decreased in women with lack of legal marriage and unplanned pregnancies, and increased in women who had ineffective pushing efforts approximately four times, miscellaneous two times and baby's head circumference 1.27 times. Moreover, the results of the study demonstrated that an episiotomy increased the number of the suture materials used by approximately five-fold, as well as the prevalence of pain on the first postpartum day. On the third postpartum week evaluation, it was determined that the probability of problems with wound healing and experiencing pain was approximately two times higher among women who received episiotomies than those who did not receive episiotomies.

Conclusion: The study revealed that episiotomies in primiparas increased the number of suture materials used and the probability of having perineal pain on the first postpartum day, as well as perineal pain and wound-healing problems during the third postpartum week.

Key words: Episiotomy, pain, perineum, prevalence, wound healing

INTRODUCTION

In Turkey, it is estimated that 1 286.796 births occur annually^[1] and that nearly one-half (52.5%) of these births are vaginal births.^[2] Midwives and obstetricians routinely perform episiotomy on the majority of these women because they subscribe to the beneficial effects of episiotomy. However, in a number of systematic reviews, it has been reported that episiotomy is not as beneficial as expected and should not be routinely performed. These studies revealed that episiotomy fail to decrease the risk of perineal trauma, accelerate the healing of perineum,

prevent pelvic floor relaxation, or improve the outcomes regarding the newborn. Moreover, it has been reported that episiotomy is associated with increased perineal pain, sexual problems, and incontinence in the postpartum period.^[3-5]

There is a lack of evidence regarding how spontaneous perineal lacerations can be prevented during vaginal birth without complications.^[6] In the studies that have compared the restricted use of episiotomy with their routine uses, it has been reported that there is a decrease in posterior perineal trauma and the need for suture in the restricted use of episiotomy; however, no differences have been reported regarding the risk for serious vaginal or perineal trauma, pain, dyspareunia, or urinary incontinence.^[7,8] Furthermore, in the studies comparing women who have spontaneous lacerations, episiotomy, and intact perineum, it has been reported that there is no difference between the women with spontaneous lacerations and episiotomies regarding long-term disorders.^[9,10]

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Based on this information, routine use of episiotomy has gradually decreased in many developed countries.^[11,12] In addition, the prevalence of episiotomy is recommended by the World Health Organization, around 10%.^[13] However, in studies conducted in two different centers in Turkey, it has been reported that episiotomy is performed in 64% and 74% of women who undergo vaginal birth and this rate increases to 95% in primiparas.^[14,15] Therefore, to reduce episiotomy's rate and to develop the intrapartum care, it is needed further studies and knowledge specifically in primiparas.

Mediolateral episiotomy is the most frequently used type of episiotomy in Europe and Turkey. It is defined as an incision beginning within 3 mm of the midline in the posterior fourchette, and directed laterally at an angle of at least 60° from the midline toward the ischial tuberosity and downward away from the rectum.^[16]

In Turkey, midwives are involved in the long-term care of women. Midwives follow women 15 to 49 years of age in terms of antepartum, intrapartum, and early and late postpartum care. In the effective and sensitive care of women and their families, decreasing the rate of trauma to the genital tract is of great importance and has priority both for the woman and for the healthcare workers. A multidisciplinary approach, including the midwives, obstetricians, and other relevant healthcare workers is essential in the management of perineal traumas.^[17,18] In accordance with national and institutional strategies, the midwives have substantial responsibilities in the restricted use of episiotomy, in addition to intrapartum care and follow-up, as well as supporting and assisting in the deliveries.

Despite current recommendations against routine use of episiotomy, its incidence is still high in Turkey. Therefore, prospective studies involving the demographic, labor, and postpartum conditions related with episiotomy, as well as the traditional approach of healthcare workers during intrapartum and postpartum care are needed. The purpose of the present study was to identify the prevalence of episiotomy, related conditions, and effects of episiotomy on suture materials used, perineal pain, wound healing 3 weeks postpartum in primiparas who have given birth in the obstetrics and gynecology clinic of a state hospital in the western region of Turkey, as well as to compare these outcomes with those of international studies. Thus, more effective actions could be objectively promoted in searching for the reduction of its frequency, providing a clinical practice based on scientific evidence.

MATERIALS AND METHODS

Study design

This study was designed as a prospective follow-up study.

Participant sample

Three hundred ninety-six primiparas were included in the study by convenience sampling. Data of the study were collected between March 2007 and February 2009 in the Maternity and Children Clinic of Aydın Government Hospital, Turkey. According to this hospital records, the number of vaginal deliveries in 2006 was 3720 and 90% of the women who had given birth for the first time had episiotomy. The estimated number of women that would be included in the study was 348 when calculated within a 95% confidence interval (CI; $\alpha = 0.05$), with a $P = 0.50$, and a population size of 3 720.^[19] Because of the restricted use of episiotomy in this study, $P = 0.50$ was taken in the calculation of sample size. The study was conducted with 396 women in case withdrawals from the study in the course of the follow-up period. All of the women included in the study gave consent to participate in the study. Three hundred thirty-one women (83.6%) could be contacted in the third postpartum week.

Because childbirth education classes are not widespread in Turkey, women were not participated in the classes. Primiparas with term pregnancies (37-42 weeks) between 18 and 35 years of age who were expected to undergo a vaginal birth were included in the study. The following criteria served as study exclusions: Multiparas; fetal macrosomia; malpresentations and position disorders; polyhydramnios; fetal distress; intrauterine fetal demise; premature or postdates birth; and vacuum extraction deliveries.

Setting

The present study was conducted in the Maternity and Children Clinic of Aydın Government. In this clinic, episiotomy is carried out in multiparas and, almost routinely, in primiparas. A mediolateral incision is generally made on the woman's right-hand side. All women gave birth in the lithotomy position. When women are in the lithotomy position, their backs are raised slightly to help bearing down, and surfaces that contact the popliteal space behind the knee are padded to reduce pressure. The height and angle of the stirrups are adjusted so there is no pressure on the backs of the knee or the calves, which might cause discomfort and postnatal vascular problems. Manual fundal pressure is sometimes used in women who had ineffective pushing efforts and decreased fetal heart rate. Oxytocin and amniotomy are generally use in the active phase of second stage of labor in this hospital. Solution with oxytocin is set up as 5 units/500 ml dextrose 5% in water solution. Initial dosage is 1.5-2 mill units/min, dosage is increased every 30 to 60 minutes until a good contraction pattern (every 2-3 minutes and lasting 40-60 seconds) is achieved. A dose of up to 20 to 40 mill units/min is reached. Pushing is started after cervical dilation is completed.

Data collection tools

The study data were collected via a questionnaire form designed by the researchers, as based on the literature.^[10,15,17,20,21] The questionnaire consisted of a questionnaire of descriptive characteristics, a labor observation form, and follow-up forms to be used on the first day, third week. The questionnaire of descriptive characteristics consisted of 13 questions regarding the age, level of education, employment status, health insurance, obstetric history, marital status, the perceived income, whether or not the pregnancy was planned, height, the preconception weight and weight gain during pregnancy, whether or not the gravid had prenatal care, and information about labor.

The labor observation form was used to collect data about the intervention made during labor, the length of the first and second stages of labor, the methods used by the midwife to facilitate labor, the role of the mother in labor, the presence of miscellaneous (a hand presenting alongside the vertex, presentation of parietal bone, tangled umbilical cord), fetal heart beat, APGAR scores, birth weight and head circumference, the presence of perineal trauma (episiotomy or spontaneous laceration), number of packs of suture material used, and the amount of time which had passed for the women to recover after birth. On the first postpartum day, information about the presence and level of perineal pain was obtained using a visual analogue scale.^[22] The third postpartum week follow-up form consisted of three questions regarding problems about wound healing, as well as wound healing, and perineal pain. A pilot study conducted on 20 subjects to improve the availability and comprehensibility of the data collection tools, and some questions on the labor observation form were rearranged.

Procedure

The present study was conducted by four investigators, of whom three were academic nurses with doctoral degrees in obstetrics and gynecology nursing or pediatric nursing and one was a midwife experienced in the field and clinical settings, and volunteer for the study. Women had been recruited only in the study during the midwife's working hours. The women who met the study criteria informed about the study and written consents were obtained by the midwife in labor unit. Intrapartum follow-up and care of the women were performed by the midwife in accordance with the protocol of the hospital. In this study, to examine related conditions, and effects of episiotomy on suture materials used, perineal pain, wound healing 3 weeks postpartum, as well as the prevalence of episiotomy in primiparas, episiotomy was used as restrictively. The midwife also performed episiotomy, when required, tried to assist women

during labor, and completed the labor observation form. The midwife followed and observed each woman from the beginning to the end of her labor and any other cases were not included during this time. This process continued until the necessary number of cases had been recruited.

In this study, episiotomies and spontaneous lacerations requiring repair were sutured with standard synthetic sutures with rapidly absorbing, continuous technique was used for vagina, and interrupted methods was used for perineal muscles and skin. Suturing techniques and materials for perineal repair episiotomy and second degree tears can affect the rates of perineal pain.^[23,24]

The academic nurses completed the first postpartum day questionnaire forms and the first postpartum day follow-up forms via face-to-face interviews, whereas the third postpartum week forms were completed via telephone calls. Furthermore, women were asked on the first postpartum day follow-up to look at their perineal region weekly with a mirror to monitor the trauma and observe whether or not there was redness, swelling, a wound opening, or pain. They were also instructed how to do this procedure and stated to ask this knowledge in postpartum third week. The admission and first postpartum day follow-up forms were completed in 10 to 15 minutes, whereas the third postpartum week follow-up form was completed in two-three minutes. However, interviews with the women, for whom additional information and counseling was required, took 10 to 30 minutes.

Ethical considerations

The study was approved by the Local Ethics Committee of the Faculty of Medicine of Adnan Menderes University and the Health Directorate of Aydın, Turkey. Written or verbal informed consent was obtained from all of the gravidas included in the study.

Data analysis

Descriptive statistics including means and proportions were used for demographic characteristics and variables concerning pregnancy, labor, newborns, first postpartum day, and third postpartum week. Comparison of women with episiotomy *vs* those without episiotomy was assessed by *t* tests for continuous dependent variables or by Fischer exact test for proportions. Multivariate logistic regression was used to assess which demographic variables and variables concerning pregnancy, intrapartum care, and newborns remained as significant determinants of the episiotomy. Stepwise methods verified by "best subsets" analyses were used to determine the important predictors of episiotomy. The odds ratio (OR) and confidence interval (CI) were calculated with a univariate logistic regression analysis for

the number of suture materials used, the time passed for the mother to recover after birth, the presence and severity of perineal pain, problems with wound healing, and a delay in wound healing in the first postpartum day and the third postpartum week. The data of the study were analyzed with the Statistical Package for the Social Sciences (version 11.5; SPSS Inc., Chicago, IL, USA). The significance level was considered as a $P < 0.05$.

RESULTS

Of 396 primiparas who participated in this study, 223 (56.3%) had episiotomy. Of the participants, 14 (3.5%) had an intact perineum, 159 (40.2%) had spontaneous lacerations, and 46 (11.6%) had episiotomy with spontaneous lacerations. Of the lacerations that developed in addition to episiotomy, 13 were in a region other than the episiotomy, whereas 33 were in the form of an extension of the episiotomy. Of the spontaneous lacerations, 90.7% ($n = 156$) were grade one, and 9.3% ($n = 16$) were grade two. None of the gravidas had grade three or four lacerations or had extended episiotomy.

The distribution of the sociodemographic variables of the women, as well as the variables concerning pre-pregnancy and pregnancy periods according to the episiotomy status are presented in Table 1. Although the mean age of the women who had an episiotomy was 23.34 ± 3.67 years, the mean age of the women who did not receive an episiotomy was 22.48 ± 3.58 years; the difference was statistically significant ($t = -0.020$, $P < 0.05$). The women in both groups were similar in terms of primary and intermediate education status (with episiotomy group [WE], 60.5%; no episiotomy group [NE], 65.9%). A small percentage of the women were working in wage-earning employment (WE,

12.1%; NE, 10.4%) and more than one-third of the women reported their income to be low (WE, 36.3%; NE, 35.8%). The percentage of women without legal marriages who had episiotomies was significantly lower than women who were legally married (3.6% vs 9.2%; $\chi^2 = 5.484$, $P < 0.05$).

The women who participated in the study reported the following: 10.6% had more than one pregnancy; 14.4% received inadequate prenatal care; and 81.6% were not informed about labor. The mean body mass index (BMI) of the participants was 22.18 ± 7.24 kg/m² before pregnancy, and they gained 13.41 ± 5.21 kg during the course of the pregnancy. The difference between the groups with and without episiotomy was not statistically significant in terms of the above-mentioned variables [Table 1]. The episiotomy rate was significantly lower among women with unplanned pregnancies compared to those with planned pregnancies (12.6% vs 22.0%; $\chi^2 = 6.210$, $P < 0.05$; Table 1). The results of multivariate logistic regression analysis revealed that unplanned pregnancies (OR, 0.42; 95% CI, 0.23-0.76) and lack of legal marriage (OR, 0.37; 95% CI, 0.15-0.92) decreased the probability of an episiotomy, after adjusting for covariates [Table 2].

The distribution of the variables relevant to intrapartum care and the newborn according to the women with and without episiotomy is presented in Table 3. Women in both groups were statistically similar in terms of oxytocin administration, amniotomies, the length of the first and second stages of labor, and the Valsalva maneuver. The episiotomy rate was significantly higher in women in whom fundal pressure was applied (51.1% vs 30.6%; $P < 0.001$), foot rests were used (91.9% vs 85.5%; $P < 0.05$), women who had ineffective pushing efforts (39.5% vs 15.0%; $P < 0.001$), and women who could not maintain cooperation with the

Table 1: Demographic and pregnancy-related variables of the women ($n=396$)

Variables	With episiotomy ($n=223$)	No episiotomy ($n=173$)	P
Age, year (mean±SD)	23.34±3.67	22.48±3.58	0.020
Literate and illiterate, n (%)	20 (9.0)	14 (8.1)	0.758
Primary and secondary school graduates (8 years), n (%)	135 (60.5)	114 (65.9)	0.224
High school and university graduates (%)	68 (30.5)	45 (26.0)	0.327
Employed, n (%)	27 (12.1)	18 (10.4)	0.596
Lack of health insurance, n (%)	29 (13.0)	22 (12.7)	0.932
Lack of legal marriage, n (%)	8 (3.6)	16 (9.2)	0.019
Having a low income, n (%)	81 (36.3)	62 (35.8)	0.921
Parity >1, n (%)	19 (8.5)	23 (13.3)	0.126
Unplanned pregnancy, n (%)	28 (12.6)	38 (22.0)	0.013
Infrequent prenatal care, n (%)	30 (13.5)	27 (15.6)	0.545
Body mass index before pregnancy (mean±SD)	22.71±9.16	21.48±3.33	0.106
Weight gain in pregnancy, kg (mean±SD)	13.72±5.10	13.01±5.33	0.188

SD: Standard deviation

midwife (22.9% *vs* 12.1%; $P < 0.001$). The episiotomy rate was significantly lower in women in whom perineal massage was applied (46.2% *vs* 54.9%; $P < 0.05$). However, the results of multivariate logistic regression analysis revealed solely that the ineffective pushing efforts increased the probability of episiotomy approximately four times (OR, 3.88; 95% CI, 2.31-6.54), after adjusting for covariates [Table 2].

The episiotomy rate was similar among women with and without fetal heart rates <120 beats per minute during the second stage of labor (25.1% *vs* 20.2%); however, only one newborn of the woman with episiotomy had the first minute APGAR score of six. On the other hand, the mean birth weight (3213.41 ± 391.59 g *vs* 3129.25 ± 383.11 g; $P < 0.05$) and the baby's head circumference (34.69 ± 1.31 cm *vs* 34.27 ± 1.20 cm; $P < 0.001$) of the newborns of gravidas with episiotomy were significantly higher than gravidas

without episiotomy. On the other hand, the episiotomy rate was significantly lower in women in whom had miscellaneous (26.9% *vs* 37.6%; $P < 0.05$; Table 3). Also, the results of multivariate logistic regression analysis also revealed that the miscellaneous was approximately four times (OR, 1.70; 95% CI, 1.07-2.70) and the baby's head circumference (OR, 1.29; 95% CI, 1.08-1.53) increased the probability of episiotomy [Table 2].

Moreover, the mean number of suture materials used (1.68 ± 0.70 *vs* 1.06 ± 0.54 ; $P < 0.001$) and the mean time passed for the mother to recover after birth (26.69 ± 9.92 min. *vs* 19.69 ± 8.93 min.; $P < 0.001$) were significantly higher in the women with episiotomy as compared to those without episiotomy [Table 4]. The results of univariate logistic regression analysis revealed that an episiotomy increased the probability of a number of suture materials used approximately six times (OR, 6.14; 95% CI, 3.88-9.70), and a time passed for the mother to recover after birth 1.1 times (OR, 1.10; 95% CI, 1.07-1.13).

Table 2: Multivariate analysis of predictors associated with episiotomy (N=396)

Variables	Odds ratio (95% CI)	P
Lack of legal marriage	0.37 (0.15-0.92)	0.032
Unplanned pregnancy	0.42 (0.23-0.76)	0.004
Perineal massage application	0.69 (0.45-1.07)	0.096
Ineffective pushing efforts	3.88 (2.31-6.54)	0.000
Miscellaneous	1.70 (1.07-2.70)	0.024
Baby's head circumference	1.29 (1.08-1.53)	0.004

The women with episiotomy had significantly more frequent (85.2% *vs* 53.2%; $P < 0.001$) and more severe perineal pain (the mean visual analogue scale score, 1.54 ± 0.93 *vs* 0.82 ± 0.94 ; $P < 0.001$) on the first postpartum day. Furthermore, the women with episiotomy had also significantly more frequent perineal pain (38.7% *vs* 16.8%; $P = 0.000$), severe perineal pain (the mean visual analogue scale score, 1.95 ± 1.29 *vs* 1.36 ± 0.85 ; $P < 0.001$),

Table 3: Features of labor and perinatal results associated with episiotomy (n=396)

	With episiotomy (n=223)	No episiotomy (n=173)	P
Features of labor			
Use of oxytocin, n (%)	213 (95.50)	168 (97.10)	0.410
Amniotomy, n (%)	175 (78.50)	134 (77.50)	0.808
Mean duration of the first stage, hours (mean \pm SD)	7.95 \pm 4.34	7.58 \pm 4.14	0.392
Mean duration of the second stage, min (mean \pm SD)	35.26 \pm 17.82	32.21 \pm 18.77	0.099
Perineal massage application, n (%)	103 (46.20)	95 (54.90)	0.046
Application of fundal pressure, n (%)	114 (51.10)	53 (30.60)	0.000
Use of foot rests, n (%)	205 (91.90)	147 (85.50)	0.029
Ineffective pushing efforts, n (%)	88 (39.50)	26 (15.03)	0.000
Inability to maintain cooperation with the midwife, n (%)	51 (22.90)	21 (12.10)	0.006
Use of Valsalva maneuver, n (%)	4 (1.80)	3 (1.70)	0.964
Perinatal results			
Fetal heart rate <120 beat/min in the second stage, n (%)	56 (25.10)	35 (20.20)	0.252
One minute APGAR score <7 , n (%)	1 (0.50)	0 (0.0)	0.378
Mean birth weight, g (mean \pm SD)	3213.41 \pm 391.59	3129.25 \pm 383.11	0.033
Mean head circumference, cm (mean \pm SD)	34.69 \pm 1.31	34.27 \pm 1.20	0.001
Miscellaneous (a hand presenting alongside the vertex, tangled cord, and presentation of parietal bone**), n (%)	60 (26.90)	65 (37.60)	0.024

SD: Standard deviation, *Increase in fetal heart rate >160 /min was observed in a fetus in the group without episiotomies, **Presentation of parietal bone, asynitism can cause cephalopelvic disproportion, even in a normal size pelvis, because the head is positioned so that it cannot descend

Table 4: Postpartum follow-up results of the women (N=396)

Follow-up results	With episiotomy (n=223)	No episiotomy (n=173)	Odds ratio (95% CI)	P
Early postpartum period				
Number of suture materials used, (mean±SD)	1.68±0.70	1.06±0.54	6.14 (3.88-9.70)	0.000
Time for the mother to recover after birth, min (mean±SD)	26.69±9.92	19.69±8.93	1.10 (1.07-1.13)	0.000
First postpartum day (WE, n=223; NE, n=198)				
Perineal pain, n (%)	190 (85.2)	92 (53.2)	5.07 (3.15-8.15)	0.000
Severity of perineal pain (mean±SD)	1.54±0.93	0.82±0.94	2.26 (1.79-2.86)	0.000
Third postpartum week (WE, n=194; NE, n=137)				
Perineal pain, n (%)	75 (38.7)	23 (16.8)	3.12 (1.83-5.32)	0.000
Severity of perineal pain (mean±SD)	1.95±1.29	1.36±0.85	1.67 (1.33-2.10)	0.000
Problems with wound healing, n (%)	61 (31.4)	17 (12.4)	3.24 (1.80-5.85)	0.000
Delayed wound healing, n (%)	41 (21.1)	14 (10.2)	2.35 (1.23-4.52)	0.010

SD: Standard deviation, WE: With episiotomy, NE: No episiotomy

problems with wound healing (31.4% vs 12.4%; $P < 0.001$), and delays in wound healing (21.1% vs 10.2%; $P < 0.01$) in the third postpartum week. The results of univariate logistic regression analysis revealed that an episiotomy increased the probability of a frequent perineal pain approximately five times (OR, 5.07; 95% CI, 3.15-8.15) and severe perineal pain two times (OR, 2.26; 95% CI, 1.79-2.86) on the first postpartum day. In addition, an episiotomy increased the probability of a frequent perineal pain three times (OR, 3.12; 95% CI, 1.83-5.32), severe perineal pain two times (OR, 1.67; 95% CI, 1.33-2.10), problems with wound healing three times (OR, 3.24; 95% CI, 1.80-5.85), and a delay in wound healing two times (OR, 2.35; 95% CI, 1.23-4.52) in the third postpartum week [Table 4].

DISCUSSION

The present study was designed as a prospective follow-up study to identify the prevalence of episiotomy in primiparas, related conditions, and effects of episiotomy on suture materials used, perineal pain, and wound healing 3 weeks postpartum. In the course of the study, the women were followed up during the intrapartum and early and late postpartum periods; data were obtained regarding their status on the first postpartum day, and in the third postpartum week. The prevalence of episiotomy observed in this study (56.3%) was much higher than what is recommended by the World Health Organization, around 10%.^[13] The present study revealed that the probability of performing an episiotomy was decreased among women with lack of the legal marriage and unplanned pregnancies; however, increased among women who had ineffective pushing efforts. Moreover, the present study also indicated that an episiotomy increased the number of suture materials used and the frequency and severity of pain on the first postpartum day, as well as the probability of experiencing perineal pain and problems with wound healing in the third postpartum week.

In the present study, women with and without episiotomy were compared in terms of demographic characteristics and variables related to pregnancy. The women with and without episiotomy were similar in terms of level of education, employment status, level of income, number of pregnancies, receiving information about prenatal care and labor, as well as pre-pregnancy BMI, and weight gain during pregnancy. In a similar study conducted by Sartore *et al.*,^[9] it was also reported that women with and without episiotomy were similar in terms of body weight prior to pregnancy and weight gain during the course of pregnancy. Furthermore, in the present study, the episiotomy rate was significantly lower in women with lack of the legal marriage and unplanned pregnancies. The results of multivariate logistic regression analysis also revealed that the probability of an episiotomy was lower in these women.

In some studies, it has been reported that the birth weight of the infant is associated with perineal trauma,^[25,26] whereas contradictory results have been also reported.^[27] In the present study, it was determined that the birth weights of the infants of women with episiotomy were slightly higher than women without episiotomy; however, multivariate logistic regression analysis revealed that this correlation did not exist. In a similar study, Sartore *et al.*^[9] reported that the birth weights of the infants of women with episiotomy were greater than those of women without episiotomy.

Women in both groups were statistically similar in terms of amniotomy, use of oxytocin, the length of the first and second stages of labor, perineal massage, and the use of Valsalva maneuvers. These results revealed that women with and without episiotomy underwent similar interventions during intrapartum care.

It has been reported in many studies that trying to assist women in the lithotomy position and using foot rests

increases the need for an episiotomy and the risk of perineal trauma by causing excessive stretching of the perineal tissue.^[25,26,28] In the present study, it was observed that all of the women gave birth in the lithotomy position, and that in agreement with the literature foot rests were used more in women who had episiotomy (91.9% *vs* 85.5%); however, multivariate logistic regression analysis revealed that this correlation did not exist.

In the present study, the episiotomy rate was higher among women who could not push the baby effectively (39.5% *vs* 15.0%), could not maintain cooperation with midwife (22.9% *vs* 12.1%), and in whom fundal pressure was applied (51.1% *vs* 30.6%). The results of multivariate logistic regression analysis revealed that an inability to push the baby effectively increased the probability of an episiotomy approximately three-fold. Dahlen *et al.*^[25] and Hudelist *et al.*^[26] reported that an inability to maintain effective cooperation with the clinician assisting the birth and the performance of clinician was associated with perineal trauma. On the other hand, Matsuo *et al.*^[29] reported that serious perineal trauma was observed more frequently in women in whom fundal pressure was applied. These findings revealed that cooperation of the women with a midwife in addition to the way the healthcare workers assist women during labor is associated with the episiotomy rate and perineal trauma.

Carroli and Mignini^[5] reported that the number of sutures used was less in women in whom episiotomy were restricted compared to those who received a routine episiotomy. In accordance with this information, in the present study, it was determined that the number of sutures used in women without episiotomy was approximately six times less than in women with episiotomy. Furthermore, in agreement with the literature,^[15,30] in the present study, the mean time that passed until the mother to recover after birth was significantly longer in women who underwent episiotomy due to the delayed perineal repair. Taking these results into consideration, it can be said that the routine use of episiotomy is not cost-effective.

In the present study, the women with and without episiotomy were similar in terms of fetal heart rates during the second stage of the labor and the one-minute APGAR scores. In other studies, it has been reported that an episiotomy does not improve neonatal outcomes.^[12,27,30,31]

Similar to the previous studies,^[27,32,33] the results of the present study revealed that women with episiotomy had more frequent and more severe perineal pain on the first postpartum day compared to those without episiotomy. According to the results of univariate logistic regression analysis, the perineal pain experienced on the first postpartum day among women with episiotomy was also approximately five times more frequent than women

without episiotomy. These results indicate that episiotomy lead to more perineal pain than that caused by perineal trauma in the early postpartum period.

In the present study, the women with episiotomy experienced perineal pain more frequently and severity, as well as problems with wound healing and delays in wound healing as compared to those without episiotomy. According to the results of univariate logistic regression analysis, women with episiotomy experienced more problems with wound healing and perineal pain in the third postpartum week by three times as compared to those without episiotomy. These present results are in agreement with the results of the previous studies.^[5,27,32]

In the present study, in contrast to the studies performed by Duran *et al.*^[30] and Carroli and Mignini,^[5] the rate of posterior perineal trauma was higher in women without episiotomy (posterior perineal trauma, 86 of 173 *vs* anterior perineal trauma, 77 of 173). This condition may be due to the way the midwives try to assist the woman during labor, as well as the protocols of the hospital about routine episiotomy use.

LIMITATIONS OF THE STUDY

There were several limitations to the present study. First, the study was performed with the assistance of a volunteer midwife and this might affect the results of the study concerning intrapartum observation, episiotomy, and perineal trauma. Second, the healing status of perineal trauma and the presence of infections were assessed according to the self reports of the women. The self observations, as well as the disorders reported by the women might be different from those determined by the healthcare workers. Finally, because this study was conducted with convenience sampling, results are limited to the study group and cannot be generalized.

CONCLUSIONS

The present study revealed the following results about mediolateral episiotomy among primiparas: (1) the prevalence of episiotomy was 56.3%; (2) the episiotomy rate was increased among women who had ineffective pushing efforts; (3) episiotomy increased the number of suture materials used; (4) episiotomy increased the risk for perineal pain and wound healing problems in the postpartum first day and third week. In consideration of above mentioned results, the healthcare workers trying to assist the women during labor may reduce the episiotomy rate, and consequently the short-term disorders in the postpartum period, and the cost effectiveness can be improved. Moreover, it may be

beneficial to conduct more comprehensive studies by taking the above mentioned limitations of the present study into consideration and by including higher numbers of healthcare workers and health institutes.

Implications for practice

It is important to reduce the rate of episiotomy to improve the well-being and quality of life of woman. The knowledge, awareness, and sensitivity of the healthcare workers who assist deliveries can be enhanced with in-service training programs about restricted episiotomy, and its relationship with the disorders that persist during the early periods. Women can also be informed about the benefits of restricted episiotomy and can be encouraged to make informed decisions. Furthermore, the results of the present study can be used to develop institutional and national strategies concerning episiotomy.

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