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Episiotomy practice in the Middle East: A Lebanese teaching tertiary care centre experience

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ABSTRACT

Problem: There is lack of data on the rate of episiotomy in Lebanon and the study's hospital.
Background: Only a few studies have addressed episiotomy practice in Lebanon and the Middle East and they show varying rates.
Aim: To identify the rate, and change in rate, of episiotomy practice over the years at a teaching hospital in Lebanon and to assess whether maternal age, parity, fetal weight, woman's hospital admission class, and physician's gender were associated with episiotomy. We also tested the association between episiotomy and postpartum hemorrhage and/or high degree perineal tears.
Methods: A retrospective observational study was conducted on 1756 records for women having a normal vaginal birth at a single centre from January 2009 to January 2014.
Findings: The rate of episiotomy at the hospital was very high, with 97.4% of women receiving an episiotomy in 2009. A major decrease in the rate was identified with a decline from 97.4% in 2009 to 73.3% in January 2014. Episiotomy was found to be associated with parity, maternal age, and with high degree perineal tears.
Discussion: The episiotomy rate at this centre remains higher than the 10% rate recommended by the World Health Organization, although there has been a significant reduction after a call for restrictive rather than liberal use.
Conclusion: Raising awareness among providers appeared to play a significant role in reducing this rate, although more efforts remain warranted. Other strategies – such as raising awareness of women about potential risks of episiotomy – are also worth exploring.
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Statement of significance

Problem or issue

Protective effects of episiotomy are not proven and a routine practice of episiotomy is not recommended.

What is already known

Only few studies in Lebanon addressed episiotomy practice; they all looked at reported rates from healthcare workers and not actual rates.

What this paper adds

The rate at this centre remains higher than that recommended by the World Health Organization although there has been a reduction in episiotomy rate after a call for restrictive rather than liberal use. Raising awareness among providers appeared to play a significant role in reducing it, although more efforts remain warranted.

Introduction

Episiotomy is an incision performed to widen the perineum to facilitate childbirth. The first known record of episiotomy dates back to 1741,[3] but the protective effects of an episiotomy on the

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perineum for women who are giving birth have never been proven. The World Health Organization (WHO) recommends an episiotomy rate of 10% among all normal vaginal births,[27] and proposes considering episiotomy only if one of the following indications apply: vaginal birth that is complicated by breech presentation or shoulder dystocia; vaginal birth during which forceps or vacuum extraction is used; fetal distress; scarring from female genital cutting; and/or 3rd or 4th degree lacerations that have not properly healed.[28] In turn, the potential harmful effects of episiotomy range from perineal lacerations and tears to infections and postpartum hemorrhage.[9,15,18,19,23,24] Episiotomy can also incur financial implications, as a restrictive episiotomy policy has been shown to be less costly than a policy of routine episiotomy in terms of provider cost.[2] In terms of risk factors, private insurance has been found to be associated with a higher rate of episiotomy in both Ireland and the United States.[12,13] In Lebanon, it has been found that women with private insurance and women with public insurance (i.e. publicly funded healthcare) both had increased odds of undergoing cesarean birth compared to self-payers.[26]. Some studies have also found an association between episiotomy rate and both young maternal age and older maternal age: in a retrospective cross-sectional study in 2006, Carvalho et al. found that episiotomy was significantly associated with both adolescence and age >35.[4]

Although the routine practice of episiotomy is not recommended, rates range from 9.7% in Sweden[8] to 12% to 15% in the United Kingdom[14] to 100% in Taiwan.[3] In the study region, rates range from 45% in Saudi Arabia[1] to 67% in Jordan,[25] to 75.1% in Yemen.[6] It is worth noting that for the United Kingdom, Saudi Arabia, and Jordan, the rates are reported, they are based on surveys and questionnaires and not actual rates gathered from hospital records. Thus, it appears that episiotomy rates vary significantly from one geographic area to another. On this note, only a few studies have addressed the practice of episiotomy in Lebanon and the Middle East.[11] As such, we were interested in examining the practice of episiotomy at the largest hospital in Lebanon. The study primary objective was to identify the rate and change in rate, if any, of episiotomy practice at a major teaching tertiary care hospital in the Middle East. The study also aimed at evaluating whether maternal age, parity, fetal weight, woman's hospital admission class, and physician's gender were associated with episiotomy. It finally tested the association between episiotomy and postpartum hemorrhage and/or high degree perineal tears.

Participants, ethics and methods

Data were retrospectively collected from electronic medical health records at the XXX University from January 2009 until January 2014, after institutional review board (IRB) approval was obtained. No informed consent was required since data was collected via retrospective medical records review and women's identifiers were excluded. Parturients giving birth during the study period were identified. Exclusion criteria included: women giving birth prior to 37 weeks gestation, women who underwent an operational birth, evidence of shoulder dystocia, fetal breech presentation, and evidence of fetal distress. In addition, multiple gestations were also excluded from the review. The following information was collected: episiotomy, type of episiotomy, date of birth, maternal age, woman's hospital admission class, fetal weight, physician gender, parity, perineal tears, degree of perineal tears, postpartum hemorrhage. The admission class is defined as per the following: first class is for those with private insurance or self-payers whose stay is in a one bed room; second class is for those with private insurance or self-payers whose stay is in a room with two beds; third class is for those covered by the National Social Security Fund (i.e. public insurance), have private insurance, or self-payers whose stay is in a room with two beds. Women admitted as second class have a lower level of insurance than those admitted as first class, and women admitted as third class have a lower level of insurance than those admitted as second class. Those admitted as third class are charged less on their hospital stay than those admitted as second class. The only difference in care between the classes is that those who are admitted as first class stay in a one bed room as opposed to the room with two beds in which those admitted as second class and third class stay in. We were not able to collect data on previous perineal trauma since the later was not recorded in the women's medical records.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 22. Simple linear regression was performed to assess the rate of episiotomy over time, which was then followed by crosstabulation of episiotomy by year to assess significance. Univariate logistic regression was performed to test the association between episiotomy and the following variables: maternal age, woman's hospital admission class, fetal weight, parity, and physician gender. We did not look at deliveries by provider since, as per the IRB approval, we could only collect information on the gender of the physicians. Woman's hospital admission class is not a variable which has been previously discussed in the literature; however, it was thought to include it in the review of records to examine whether the type of care that women received is associated with their medical insurance status and indirectly with socio-economic class of the woman. A multivariate logistic regression was then undertaken to identify the final model to determine whether or not there is an association between the above mentioned factors and episiotomy. In addition, a univariate logistic regression was performed to test whether there is an association between use of episiotomy and post-partum hemorrhage. Finally, chi-square test was performed to test:

- The association between episiotomy and type of tears,
- The association between type of episiotomy and type of tears,
- The association between type of episiotomy and degree of tears.

Statistical significance was evaluated at $p < 0.05$ level.

Results

The total number of normal vaginal births between January 2009 and January 2014 was 2727. Of these, 352 cases were excluded due to incomplete medical records. Of the remaining 2375 cases that were examined, 619 were excluded as per the study exclusion criteria. The final sample consisted of the records of a total of 1756 women undergoing a normal vaginal birth. Maternal age ranged between 17 and 50 with a mean age of 29.7 years. Regarding the socioeconomic status of the women, 48.7% of women were admitted in first class, 22.6% of women were admitted in second class, and 28.7% of women were admitted in third-class. Out of all the records reviewed, 57% of women were delivered by male physicians. At the time of birth, 43.1% had a parity of 0, 40.6% had a parity of 1, and 13% had a parity of 2 (Table 1a).

Of all the women whose births were included in the study, 84.5% had an episiotomy. We identified, however, a steady decline in the episiotomy rate over the 5-year study period from 97.4% in 2009 to 73.3% in 2014. The proportions for year 2011 were significantly different from those of years 2009 and 2010 and from those of years 2012–2014 at $\alpha = 0.05$. In addition, rates for years 2012–2014 were statistically different from those of years 2009 and 2010 at $\alpha = 0.05$ (Fig. 1). Mediolateral episiotomy was more frequently performed than median episiotomy throughout the whole study period. Out of those women who had an episiotomy,

Table 1a
Description of the sample.

Variables	Categories	N	%	Mean	SD
Maternal age	Age <35 years (17–34 years)	1461	83.2	29.7	4.9
	Age ≥35 years (35–50 years)	295	16.8		
Fetal weight[a]	Weight <4000 g	1695	96.5	3267.18	386.841
	Weight ≥4000 g	57	3.2		
Woman's hospital admission class	1st class	856	48.7		
	2nd class	396	22.6		
	3rd class	504	28.7		
Physician gender	Male	1001	57		
	Female	755	43		
Parity	0	757	43.1		
	1	713	40.6		
	2	228	13		
	3	48	2.7		
	≥4	10	0.6		
Episiotomy	Episiotomy performed	1484	84.5		
	Episiotomy not performed	272	15.5		
Type of episiotomy	Median	404	27		
	Mediolateral	1080	73		
Perineal tears	Yes	332	18.9		
	No	1424	81.1		
Degree of perineal tears[b]	Lower degree (1st or 2nd)	267	80.4		
	Higher degree (3rd, 4th or higher)	58	17.5		
Postpartum hemorrhage	Yes	4	0.2		
	No	1752	99.8		
Total Sample	–	1756			

[a] 4 birth records did not include fetal weight.
[b] 7 birth records did not include the degree of perineal tears.

73% had a mediolateral episiotomy. Of all women, 81.1% did not have a perineal tear. Out of those who had a perineal tear, 80.4% had a lower (1st or 2nd) degree tear and 17.5% had a higher (3rd or 4th) degree perineal tear, 7 women (2.1%) did not have the degree of their perineal tear recorded. Finally, only 4 women (0.2%) had post-partum hemorrhage. Of note, out of the cases excluded from the analysis (i.e. those for whom episiotomy was indicated) 89% had an episiotomy (Table 1b).

After performing univariate logistic regression to test the association between episiotomy and maternal age, woman's hospital admission class, fetal weight, parity, and physician gender, the final model included parity, maternal age, and woman's hospital admission class. Physician gender was not included in the final model, as the p-value was 0.234 at the univariate level. As well, fetal weight was not included in the final model, as the p-value was 0.909 at the univariate level.

Adjusting for the effect of the other variables, our final model showed a statistically significant association between parity and episiotomy, as the odds of having an episiotomy was lower the higher the parity. In addition, there was a statistically significant association between maternal age and episiotomy adjusting for the effect of the other variables (the odds of having an episiotomy was 2.536 higher for women who were ≥35 years of age as compared to women who were less than 35 years of age). However, the woman's hospital admission class was the only covariate for which no significant association was found in our model (Table 2).

As for the association between perineal tears and episiotomy, it was found that the percentage of perineal tears was higher in women who did not have an episiotomy than in those who had an episiotomy, and these results were significant at $\alpha = 0.05$ level (Table 3). Perineal tears were more common in women who had a mediolateral episiotomy than in those who had a median episiotomy, and the difference between the two categories was also significant at $\alpha = 0.05$. When the degree of perineal tears was analyzed, it was found that women who had an episiotomy were more at risk to have higher degree tears than women who did not have an episiotomy. In addition, women with a median episiotomy were more at risk of perineal lacerations and of higher degree

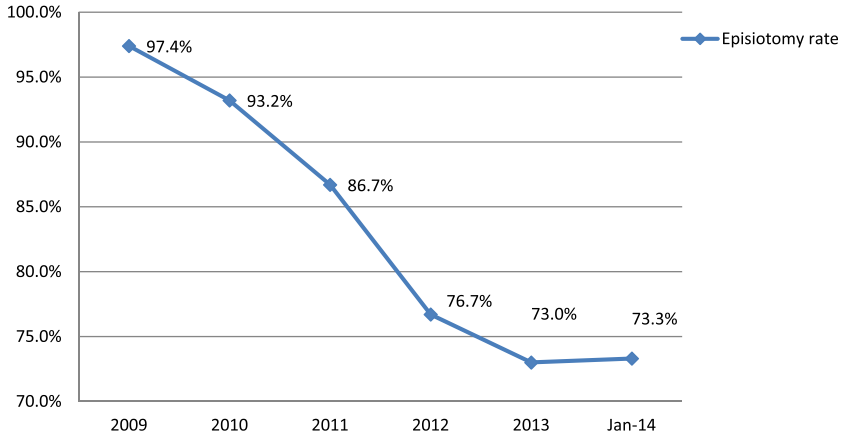

Fig. 1. Episiotomy rate at the study centre among normal vaginal births, 2009–2014.

Table 1b
Description of sample characteristics divided by whether or not episiotomy was performed.

		Episiotomy					
		No			Yes		
		Count	Mean	Column %	Count	Mean	Column %
Maternal age			30.1			29.7	
Physician gender	Male	164		60.3	837		56.4
	Female	108		39.7	647		43.6
Parity	0	7		2.6	750		50.5
	1	183		67.3	530		35.7
	2	66		24.3	162		10.9
	3	13		4.8	35		2.4
	4 or more	3		1.1	7		0.5
Woman's hospital admission class	1	130		47.8	726		48.9
	2	52		19.1	344		23.2
	3	90		33.1	414		27.9
Perineal tears	Yes	212		77.9	120		8.1
	No	60		22.1	1364		91.9
Degree of perineal tears	0	61		22.4	1370		92.3
	Lower degrees (1st and 2nd)	205		75.4	62		4.2
	Higher degrees (3rd, 4th or more)	6		2.2	52		3.5
Post-partum Hemorrhage	Yes	0		0	4		0.3
	No	272		100	1480		99.7

Table 2
Multivariate logistic regression analysis of the outcome (episiotomy) and other covariates with adjusted ORs.

Variables	Adjusted OR	P-value	95% CI
Maternal age (categorical)	2.536	<0.0001	1.676–3.836
Woman's hospital admission class	0.775	0.1	0.571–1.051
Parity		<0.0001	
Para 1	0.024	<0.0001	0.011–0.052
Para 2	0.017	<0.0001	0.007–0038
Para 3	0.014	<0.0001	0.005–0.038
Para 4 and above	0.009	<0.0001	0.002–0.044

perineal tears than mediolateral episiotomies. These results were also statistically significant at $\alpha = 0.05$ (Table 4). Finally, there was no association between post-partum hemorrhage and episiotomy (p-value = 0.995).

Discussion

This is the first study in the Middle East region to our knowledge to identify rates in episiotomy based on medical records and one of few studies on episiotomy in that region. It found that episiotomy rates at this centre, the largest centre in the country, were much higher than recommended by the best evidence, but there was a steady decline in episiotomy over the 5-year study period. Moreover, the most significant decrease in episiotomy rate is of 10% occurring between 2011 and 2012 which coincided with a recommendation for and an active encouragement of a restrictive episiotomy approach within the department which started in 2011. In fact, the episiotomy rate was selected as a key performance indicator for the department in 2011, allowing ongoing surveillance and feedback to members of the department. Following the decrease in episiotomy rate to 76.7% in 2012, it then decreased by 3.7% to reach 73% in 2013. For the year 2014, we cannot estimate

Table 3
Count and percentage of perineal tears in relation to whether or not episiotomy was performed.

			Episiotomy		P-value
			Yes	No	
Tears	Perineal tears	% of tears within episiotomy cases and within non-episiotomy cases	120 (8.1%)	212 (77.9%)	<0.0001
	No perineal tears	% of no tears within episiotomy cases and within non-episiotomy cases	1364 (91.9%)	60 (22.1%)	
Total cases		N	1484	272	

Table 4
Association between type of episiotomy performed and degree of tears.

			Type of Episiotomy			Total	P-value
			No episiotomy	Median	Mediolateral		
Tears degree	Lower degree tears (1st and 2nd degree)	% of lower degree tears in relation to type of episiotomy	205 (97.2%)	23 (45.1%)	39(61.9%)	267 (82.2%)	<0.0001
	Higher degree tears (3rd, 4th and more)	% of higher degree tears in relation to type of episiotomy	6 (2.8%)	28 (54.9%)	24 (38.1%)	58 (17.8%)	
Total		N	211	51	63	325	

the rate since we only have data from January 2014 which had an episiotomy rate of 73.3%. Despite these commitments, however, the episiotomy rate remained above the WHO recommended rate of episiotomy of 10% among all normal vaginal births.[27]

Woman' hospital admission class was included in the review of records to examine, whether the type of care that women received is associated with their medical insurance status and indirectly with socio-economic class of the woman. Although previous studies have shown that private insurance is associated with a higher rate of episiotomy,[12,13] and, in Lebanon, private and public insurance were associated with increased odds of caesarean birth compared to self-payers,[26] we found no association between woman's hospital admission class and episiotomy either at the binary level or in the final model. This could be due to the fact that it was a generalized medical practice and the woman's socioeconomic status was not particularly relevant to the practice; in addition there is no financial benefit to physicians for performing an episiotomy in this hospital. There was no association between physician gender and episiotomy and we found no studies in the literature looking at that association.

In our final model, we found that women who were of advanced maternal age (aged ≥35years) were two to three times more likely to have an episiotomy compared to those who were under 35 years of age. This is consistent with a study in Brazil which found that episiotomy was significantly associated with advanced maternal age, defined as age greater than 35 years.[4] This may be partly explained by the fact that with advanced maternal age, pregnancies may be of high risk and physicians may tend to opt for an episiotomy to avoid complications during birth. We found that as parity increased, the odds of having an episiotomy decreased which is consistent with another study in Qatar.[9] In addition, primiparous women were more likely to have an episiotomy as compared to multiparous women which has also been found in a study in Finland.[21] This could be explained by the fact that at the time of a first birth some physicians may believe that an episiotomy is required to facilitate birth, irrespective of whether it is indicated.[7,20]

In our literature review, macrosomia was identified as a predictor for episiotomy.[16] In our study, a the univariate level, the odds of having an episiotomy for women delivering babies ≥4000 g was found to be 0.958 that of women delivering babies <4000 g. However, the result was not significant with (p-value = 0.909; 95%CI = 0.464, 1.979). One study which we identified showed that the birth weight of babies whose mother had an episiotomy was statistically higher than the weight of babies whose mother did not have an episiotomy.[10] However, we could not corroborate the findings of this study with our own findings.

Two of the most common types of episiotomy are median and mediolateral. Median episiotomies are usually more associated with anal sphincter laceration[17] and severe perineal tears,[22] while mediolateral episiotomies are more associated with more pain and increased risk of blood loss.[17] Our findings revealed that more mediolateral episiotomies were performed than median episiotomies. Higher degree lacerations were more common in women who underwent median episiotomy than those who underwent mediolateral episiotomy. This is in accordance with a study by Sooklim et al. which showed that severe perineal tears were more common in women with a midline episiotomy as compared to women with a medio-lateral episiotomy.[22] However, whether choosing mediolateral episiotomies led to women experiencing more postpartum pain could not be assessed in our study.

One of the main benefits of episiotomy that the proponents of the practice promote is that it prevents perineal lacerations. In fact, our analysis did show that 77.9% of women who did not have an episiotomy ended up with a lower degree perineal laceration as opposed to 8.1% of those who did have an episiotomy. However, in all of the studies reviewed, women who had routine episiotomies were at more risk of 3rd and 4th degree lacerations than women who had selective episiotomies.[18,24] Our findings supported these results as well. Out of all women who suffered from higher degree perineal tears, 10.3% did not have an episiotomy while 89.7% did. Thus, as it seems, episiotomy in this study did not prevent high degree lacerations. Therefore, given these findings, encouraging a selective episiotomy practice instead of a routine one is warranted.

One of the main complications of episiotomy is postpartum hemorrhage, as studies did find that episiotomy was associated with increased postpartum bleeding,[9] and that it was a risk factor for postpartum anemia.[15,19] Nonetheless, we were unable to establish an association as only 0.2% of the women had postpartum hemorrhage.

This study has a number of limitations. These include a relatively small number of women for whom episiotomy was not performed; only 15% of women did not have an episiotomy. This small sample of non-episiotomy cases in comparison to the bigger sample of episiotomy cases (85%) could have limited our analysis. Nonetheless, this relatively low rate of normal vaginal births could be indicative of a high cesarean section rate. In Lebanon, the overall cesarean delivery rate is over 40%.[5] Finally, we could not assess whether episiotomy was associated with a history of perineal trauma, since perineal trauma was not recorded in the women's medical records. In turn, the main strengths of this study is that it is the first of its kind in the country and the Arab region, with the only other study in Lebanon[11] examined reported rates by healthcare workers and did not collect data on actual rates. Second, although a restrictive episiotomy practice is being encouraged at a university hospital, the largest in the country, the episiotomy rate remains high and this calls for more efforts for further reducing this rate and for raising women's awareness about the risks associated with the practice.

Conclusion

In conclusion, this study identified a contemporary decline in episiotomy rate, although it remained far from the recommended WHO rate of 10% among all vaginal births. Raising awareness among obstetric providers appeared to play a significant role in reducing this rate, although more efforts remain warranted. Episiotomy is part of the overall over-medicalization of delivery in Lebanon[11]; however, unlike other aspects of over-medicalization (such as cesarean section which is more complicated to address) it is a practice that is amenable to change as indicated by our findings. Thus, when one is aiming towards improving quality of care and reducing excessive interventions, data on episiotomy is much needed to guide interventions. This study may be useful in supporting the efforts that aim at reducing the episiotomy rate, particularly that it demonstrated that this widely practiced intervention was not preventing 3rd and 4th degree lacerations. In-depth studies with health care providers and hospital managers are also needed to raise awareness and identify ways to further reduce the use of unindicated episiotomies in this setting as well as similar contexts. Additionally, adopting a restrictive episiotomy approach at the largest hospital in the country may set the example for other hospitals in Lebanon and the region.

Ethical statement

The ethics committee which approved this research is the Institutional Review Board (IRB) at the American University of Beirut (AUB). It was approved on January 30, 2015 and the approval ID is FHS.JD.17. The Institutional Review Board (IRB) IORG registration number: is 0002657 (Expiration date: June 23, 2022).

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