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Original Article

THREE YEARS OF EPISIOTOMY AND PERINEAL TRAUMA: A COMPARATIVE STUDY OF ASSOCIATED MATERNAL AND NEONATAL FACTORS

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Abstract:

Background: Episiotomy is a surgical incision done on the perineum during childbirth to prevent trauma in form of tear/ laceration. This birth trauma could result in complication for both the mother and baby. The severity of the trauma varies and depends on maternal and fetal characteristics. The aim of the study was to compare the similarities and differences between Episiotomy use and Perineal Laceration with regards to Maternal and fetal characteristics following vagina delivery among women in Northern Nigerian.

Methods: The study was a retrospective data analysis of all women who had vaginal delivery assisted by medio-lateral episiotomy or had perineal first or second degree perineal lacerations at a Northern Nigerian tertiary hospital in a 3-year duration. The annual records were reviewed and Data on socio-demographic variables, episiotomy use, perineal lacerations, and maternal and fetal characteristics were recorded.

Results: Of 3734 vaginal deliveries, 742 (19.9%) had episiotomies and 482 (12.9%) had first and second degree perineal lacerations. Mean maternal age was 24.7 years for those with episiotomy and 29.8 year for those who had lacerations. The mean birth weight of infants for those who had episiotomy and laceration were not significantly different, being 3 and 3.2kg respectively (p value= 0.58). There was no significant association between episiotomy use or laceration with maternal parity and fetal weight however, there was a significant association between episiotomy and operative vaginal delivery (forceps and vacuum), as well as a significant association between lacerations and assisted breech delivery (p value= 0.01).

Conclusion: Episiotomy use does not differ significantly from perineal laceration in terms of maternal and fetal characteristics, the high rate of episiotomy use especially, among the Primigravidae despite the policy on restriction, requires re-orientation of providers.

Keywords: Episiotomy, Perineal laceration, Materno-foetal, Characteristics

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INTRODUCTION

Episiotomy is the extension on the perineum which is often performed to facilitate delivery and prevent complications of labor in both mother and her neonate.[1,2] In 1984 there was scientific evidence indicating the role episiotomy use plays in causing pain, sexual problems, and serious, long-term health consequences and there for it routine use need to be restricted.[3,4, 5,]

In modern obstetric practice, episiotomy is restricted but necessary in situations involving impending perineal injury and fetal demise. Weighing the risk and benefit of episiotomy is essential before performing it, however the presence of perineal tears is among the few indicators available for measuring maternal and fetal outcomes associated with childbirth and gives an insight to quality of care rendered during delivery [6,7]. A mild or first-degree perineal tear could occur during delivery without significant effect on the maternal condition but any other form of perineal injury including anal sphincter injury with fecal incontinence, the most important consequence of perineal trauma at vaginal delivery is a pure indication of poor quality of care at birth and is associated with severe morbidity.[4.] Some maternal characteristics such as age, parity, booking status and gestational age could be risk factors for perineal tear [8] while fetal presentation, position and fetal weight are some fetal characteristics that predispose women to perineal tear. Unskilled attendance at birth, improper positions during delivery such as lithotomy position, inadequate instruments to conduct deliveries and place of delivery might not only increase the risk of perineal injury but also increases the chances of so many complications during delivery and immediately postpartum. In our institution, manual protection of the perineum and the fetal head when the latter is crowning is our practice, however, for those with imminent tear episiotomy is performed at crowning and it consists of an incision of approximately 3cm from the introitus over the medio-lateral aspect of the perineum to just above the anus.

This study was carried out to determine and document the similarities and differences between episiotomies and perineal lacerations with regards to maternal and new-born characteristics. The information obtained from this study will be useful for improving service delivery if any gaps are identified, as well as counselling mothers on possible challenges during delivery or else routine procedure will be encouraged.

MATERIALS AND METHODS

The study involved a retrospective analysis of routine service statistics from the delivery suite of Ahmadu Bello University Teaching Hospital, which is a tertiary health facility, located in Shika, Zaria, in the North Western part of Nigeria.

During the study period, from 1st January 2017 to 31st December 2019, the total number of deliveries that took place at the facility was 5441 and of these, the total number of vaginal deliveries was 3734 and the analyses were carried out on these vaginal deliveries only.

Maternal characteristics, such as, maternal age, gestational age, parity, booking status, estimated blood lost, fetal presentation, mode of delivery, time of delivery, use of forceps or vacuum, presence of first or second degree perineal laceration, episiotomy use and associated delivery complications were analysed with comparisons between the two groups (those who had episiotomies and those who had lacerations).

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Similarly, newborn characteristics including birth weight, fetal presentation, mode of delivery, sex, and its condition (alive or stillborn) were analysed.

All deliveries that were complicated by third and fourth degree perineal lacerations and postpartum haemorrhage from other documented causes were excluded from the analysis of the estimated blood loss. In addition, multiple births were excluded from the analysis.

The data was entered into Excel 2016 and analysed using its statistical features. Ranges, rates and proportions were used to compare various maternal and fetal characteristics with episiotomy use and perineal laceration as well as tests of association including chi-square test for discrete variables and student T-test for continuous variables. A statistically significant level was determined to be a, present if the p value was less than 0.05.

RESULTS

The total number of deliveries that took place at the facility during the study period was 5441 and of these, the total number of vaginal deliveries was 3734. Of these vaginal deliveries, 742 (19.9%) had episiotomies and 482 (12.9%) had perineal lacerations.

The maternal age ranged from 15 to 43 among the episiotomy group (both singleton and twin births) and 17 to 45 among the laceration group (both singleton and twin births). The parity (pregnancies of 28 weeks or more) of the mothers ranged from 0 to 11 among the episiotomy group and 0 to 9 among the laceration group. Women

Table 1. General descriptive statistics for all mothers who had episiotomy or perineal laceration

Variable	Episiotomy	Laceration	P value (test)
Average maternal age (years)	24.7	29.7	0.42
Booking status			
Booked	674 (91.3%)	455 (94.6%)	0.04
Booked Elsewhere	19 (2.6%)	12 (2.5%)	
Unbooked	45 (6.1%)	14 (2.9%)	
Parity			
Para 0 or 28weeks >	531 (71.7%)	75 (15.6%)	0.23
Para 1 -4	204 (27.5%)	354 (73.8%)	

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Para 5 or more	6 (0.8%)	51 (10.6%)	
Number of babies			
Twins	10 (1.4%)	17 (3.5%)	0.01
Singletons	732 (98.6%)	465 (96.5%)	
Time of delivery			
8am – 7.59 pm	369 (50.5%)	246 (51.1%)	0.82
8pm – 7.59 am	362 (49.5%)	235 (48.9%)	

Table 2. Maternal characteristics for women who had singleton deliveries and episiotomies or lacerations

Variable	isiotomy	Laceration	P value (test)
Average maternal age(years)	24.7	29.8	0.36
Booking status			
Booked	666 (91.5%)	435 (94.4%)	0.0 8
Booked Elsewhere	19 (2.6%)	12 (2.6%)	
Unbooked	43 (5.9%)	14 (3.0%)	
Parity			
Para 0	524 (71.7%)	71 (15.3%)	0.31
Para 1-4	201 (27.5%)	341 (73.7%)	
Para 5 or more	6 (0.8%)	51 (11.0%)	

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Other			
Estimated blood loss (ml)	290.9	290.9	0.99
Blood loss 500ml or more	9.2%	10.3%	0.54

who had never delivered pregnancies of gestational age of 28 weeks or more were classified as having parity of 0. Twins were the only multiple births in bo th groups.

As detailed in table there was a significant difference (p value =0.04) in the booking status of mothers who had episiotomies compared to those who had lacerations with more of the unbooked mothers having episiotomies (6.1%) compared to lacerations (2.9%).

Compared to the general group, there was no significant difference in the booking status of those who had episiotomies and those who had lacerations among mothers who had singleton births as detailed in table 2. There was also no significant difference between the two groups with regards to parity, maternal age, estimated blood loss and prevalence of postpartum haemorrhage. Although majority of mothers who had episiotomies in this study were Primigravidae and mothers who had perineal lacerations were mostly multigravidae, this difference was not statistically significant.

There was no significant association between episiotomy or laceration and fetal presentation, time of delivery, sex of the newborn or birth weight, among singleton deliveries. However, th ere was a significant association between episiotomy and operative vaginal delivery (forceps and vacuum p value =0.01), as well as a significant association between lacerations and as sisted breech delivery.

Table 3: Newborn's characteristics for women who had singleton deliveries and episiotomies or lacerations

Variable	Episiotomy	Laceration	P value
Fetal presentation	722 (98.6%)		
Cephalic (vertex)	7 (1.0%)	454 (98.3%)	60.86
Breech	(0.4%)	(1.3%)	0.01
	(0.6%)	2 (0.4%)	
Cephalic (occipito-posterior)	6 (2.2%) 1 (0.1%)		
		0 (0)	
Mode of delivery		(1.1%)	
Forceps		(1.3%)	
Vacuum			
Assisted breech			

Table 4. Differences in estimated blood loss at different times of the day

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Spontaneous vaginal delivery	71 1 (97.1%)	450 (97.6%)	
Time of delivery			
Day (8 am to 7.59pm)	366 (50.8%)	241 (51.9%)	0.69
Night (8pm to 7.59am)	355 (49.2%)	223 (48.1%)	
Newborn's sex			
Female	359 (49.1%)	223 (48.3%)	0.78
Male	372 (50.9%)	239 (51.7%)	
Other			
Birth weight (kg)	3.0	3.2	0.58

Estimated blood loss (ml): Combined group	8am – 7.59pm	8pm – 7.59 am	P value
<500	512 (90.8%)	487 (89.9%)	0.87
500 – 999	36 (6.4%)	38 (7.0%)	
1000 or more	16 (2.8%)	17 (3.1%)	
Estimated blood loss (ml): Episiotomy group			
<500	309 (91.7%)	297 (89.7%)	0.68
500 – 999	21 (6.2%)	25 (7.6%)	
1000 or more	7 (2.1%)	9 (2.7%)	
Estimated blood loss (ml): Laceration group			
<500	203 (89.4%)	190 (89.7%)	0.98
500 – 999	15 (6.6%)	13 (6.4%)	
1000 or more	9 (4.0%)	8 (3.9%)	

Table 5: Obstetric complications among mothers who had episiotomies or lacerations

	Episiotomy	Laceration	Excluded from EBL analysis due to PPH
Abruptio placentae	1	0	1

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cervical laceration	2	0	2
Pre -eclampsia/eclampsia	7	0	2
Shoulder dystocia	5	0	
VBAC	3	0	
Cord round neck	4	4	1
PPH	3	4	7
Delayed 2nd stage	1	0	
Compound presentation	1	0	
Retained placenta	1	0	
MOP	0	2	1
3rddegree perineal tear	0	3	
Hepatitis C	0	1	
Clitoral laceration	0	1	
Retained placenta	0	1	
Total	28 (3.8%)	16 (3.3%)	14

The estimated blood loss was not significantly different at different times of the day for the episiotomy or the laceration group as well the combined group as detailed in table. There was also no significant difference between the estimated blood loss in both the
episiotomy group and the laceration groups even after controlling for other factors that may affect the situation such as other obstetric complications.

The prevalence of obstetric complications was not significantly different in the two groups of women (chi-square test, p value = 0.68).

The occurrence of cord rounds fetal neck, as immediate obstetric complications in mothers who had episiotomies or lacerations were equal in number. Although there was no significant diffrence in the occursance of these immediate complications with laceration and episiotomy use, it was observed that 3rd degree perineal tear and clitoral laceration obtained as a result of difficult delivery occurred only in laceration group.

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A total of 14 women had postpartum haemorrhage due to other complications and these were excluded from the analyses of estimated blood loss.

DISCUSSION

The episiotomy rate in this study was 19.9% while the rate of perineal lacerations was 12.9%. This was much lower than the previous study done by S.T Sule and S.O Shittu with an episiotomy rate as high as 35.6%[9]. These rates were different from what has been reported from other parts of Nigeria. In Port Harcourt, Nigeria the episiotomy rate was found to be as high as 62.1% [10] while in Enugu, Nigeria, the rate was found 39.6%.[26.] Similarly, a study from North-Central Nigeria reported an episiotomy rate of 20.8% and a laceration rate of 3.2%[19.] The wide range of variation between western and North central part of Nigeria might be due to laydown policy regarding episiotomy use or skill of providers, though all the providers were midwives and resident doctors. Reports from other parts of the world also show different rates of episiotomy and perineal lacerations. A report from the UK showed an episiotomy rate of 39.7 % and a perineal laceration rate of 37.1%[12.] In Denmark a rate of 3.7% was recorded while 75.0% in Cyprus.[11.] A study in France revealed that the rate of episiotomies dropped from 26.7% in 2007 to 19.9% in 2014, which was similar to our findings. The reduction in episiotomy rate in this country suggests their strict adherence to recommendation of restrictive episiotomy use.[13] In the US data available shows that between 2006 and 2012 there was a decline from 64% to 14.4%. The trend was different in Australia, with a stead y rise from 12.8% in 2000 to 14.9% in 2006 and to 16.2% in2012.[4] In a system review of outcome of routine episiotomy it was observed that those with strong definitions restricting use to fetal indications have achieved rate as low as 8% to 10%, but in contemporary practice episiotomy use remains more than 3-fold higher[14,15.] These findings are still far from the 1996 WHO recommendation of episiotomy rate of 10% [25.]

As detailed in table there was a significant difference in the booking status of mothers who had episiotomies 91.5% compared to those who had lacerations 94.6% in the general group (p-value of 0.04) with more of the unbooked mothers having episiotomies 6.1% compared to lacerations 2.9%. This was similar to the study in Enugu, Nigeria where high rate of episiotomy was recorded among booked women 65.6% as compared to unbooked 39.6%,.[20.] This suggests that birth attendants in our study were especially careful when delivering booked mothers.

Despite the restrictive policy, there is still a high rate of episiotomy among primigravida, in this study of 531(71%) were Primigravidae and higher than in North –Centre Nigeria were 70% was recorded among low parity women [19.] In a study by Zaheera in Saudi Arabia almost all the Primigravidae had episiotomy 48.46%[18.] Anat et al showed maternal age, gestational age to be risk factor for episiotomy in both primigravida and multiparous women[7], this study did not find any significant difference between episiotomies and perineal lacerations with regards to various maternal and newborn factors such as maternal age, fetal presentation, birth weight, time of delivery, condition of the newborn, and sex of the newborn.

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On the other hand the relationship between the maternal age, parity, booking status, fetal weight and perineal status at delivery was statistically significant (P≤ 0.05), in a study done in NorthCentral Nigeria [19.]

Also our study showed that there was a significant association between episiotomy and operative vaginal delivery (forceps and vacuum) p value 0.01. Instrumental vaginal deliveries either forceps or vacuum remains is an indications for episiotomies since it provides more room for manoeuvre and hence prevent extensive tissue damage from the procedure.[22].

Robinson J.N work in evaluating the occurrence of significant
perineal trauma among operative vaginal deliveries showed an increased rate of trauma when episiotomy was used during vacuum delivery, however episiotomy was not associated with a difference in the occurrence of significant perineal trauma when forceps was used as an instrument for vaginal delivery[24]. An episiotomy may provide easy placement of forceps to aid in delivery of the baby's head.

Although there is no evidence to indicate that an episiotomy is required for women having breech deliveries,[23, 24] in assisted breech delivery the possibility of having a perineal laceration due to the difficulties of this type of presentation especially in the hands of inexperienced accoucheur and in Primigravidae with rigid perineum is quite high[23]

Our study indic ated that the prevalence of other immediate obstetric complications present in mothers who had episiotomies or lacerations was not significantly different in the two groups (chisquare test, p value = 0.[1]8[2]). Maternal Complications such as 3rd degree perineal tear and clitoral laceration could only occur in to the laceration group. They could only occur in difficult deliveries and can be used to assess the quality of service rendered. Giving birth to twins or those mothers with unbooked twin pregnancies may be more prone to delivery complications that require episiotomy. This is an area that requires further investigation

In conclusion. Episiotomy use does not differ significantly from perineal laceration in terms of maternal and fetal characteristics, the high rate of episiotomy use especially, among the Primigravidae
despite the policy on restriction, requires re-orientation of providers. The continuous training and re-training of physicians, midwives and other birth attendants is vital for the improvement of the quality of obstetric care.

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