

Outcome of Episiotomy Repair by House Officers at the Niger Delta University Teaching Hospital, Nigeria

Ikobho Ebenezer Howells^{1*} and Isaac Joel Abasi¹

¹Department of Obstetrics and Gynaecology, Niger Delta University Teaching Hospital, Nigeria.

Authors' contributions

This work was carried out in collaboration between both authors. Author IEH designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author IJA managed the literature search. Both authors read and approved the final manuscript.

Article Information

Editor(s):

(1) Dr. Sevgul Donmez, Gaziantep University, Turkey.

Reviewers:

(1) Daniela Etlinger-Colonelli, Instituto Adolfo Lutz, Brazil.

(2) Leonardo David Villacres Montesdeoca, Universidad Central del Ecuador, Ecuador.

(3) Arti Sharma, Shri Guru Ram Rai University, India.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/60240>

Original Research Article

Received 15 June 2020
Accepted 20 August 2020
Published 28 August 2020

ABSTRACT

Background: Episiotomy is the commonest operative procedures in obstetrics, and belied by many to expedite delivery. In most tertiary hospitals in Nigeria, majority of the episiotomies are repaired by house officer, with varying degree of complications.

Objective: To determine the complications of episiotomy repair by house officers, using repair by resident doctors as control. Specifically, it would evaluate the rate of wound dehiscence, perineal pain, estimated blood loss, acute urinary retention, vulva hematoma and dyspareunia.

Materials and Methods: A comparative study of 400 parturients who were admitted in labour, delivered vaginally, and had episiotomy repair at the Niger Delta University Teaching Hospital in Bayelsa State, Southern Nigeria. Episiotomy repair was carried out in the labour ward by house officers (200 subjects), and resident doctors (200 subjects). All the episiotomies were mediolateral and repaired with polyglactic acid suture, size 0. Using those repaired by resident doctors as control, assessment of the patients was carried within 24 hours for: perineal pain, acute urinary retention, delivery to repair interval, estimated blood loss and vulva hematoma. The next assessment was at 7 days postpartum for perineal pain and wound healing. Finally, they were evaluated at 6 weeks for complete wound healing, perineal pain, and dyspareunia.

*Corresponding author: E-mail: ikobhoebenezer@yahoo.com;

Results: There was no significant difference in the rate of wound dehiscence between the 2 groups. However, episiotomy repair by house officers was associated with more vulva hematomas, Odds Ratio = 6.15[CI, 0.73 – 51.60], immediate postoperative pain, P = 0.04[CI, 0.71 – 1.06], and superficial dyspareunia.

Conclusion: Women whose episiotomies were repaired by house officers experience more postoperative morbidity than those repaired by resident doctors. If house officers will continue to repair most of the episiotomies, a more intensive training is recommended.

Keywords: Episiotomy repair; house officers; resident doctors; outcome.

1. INTRODUCTION

Episiotomy is defined as a surgical incision on the perineum made to increase the diameter of the vulva outlet during childbirth. Episiotomy is the commonest surgical procedure in obstetrics [1,2]. In a multicenter study carried out in California USA involving 510 hospitals, it was observed that among the 10% of hospitals that used episiotomy most frequently, the mean rate was 34.1% (95% CI, 32.0%-36.3%). However, among the hospitals that use it least frequently, the mean rate was as low as 2.5% [2]. In Nigeria, an incidence rate of 9.3% was reported in Owo, Ondo State, [3] while prevalence rates of 62.1% and 41.4% were reported in Enugu, [4] and Kano [5] respectively.

Rigid perineum especially in primigavida is the commonest indication for episiotomy, and rates as high as 90% have been reported in Abia State, [6] and 62.2% in Ogbomoso, [7] both in Nigeria. Other common indications include fetal macrosomia OR = 0.09[6.06, 0.15], instrumental vaginal delivery OR = 0.13[0.07, 0.26], [8] and assisted vaginal breech delivery.

Complications of episiotomy are quite common, in a study in Ahmadu Bello University Teaching Hospital, Zaria, Nigeria, episiotomy was commonly associated with perineal pain, wound sepsis (23.7%), partial dehiscence (14.5%), and hemorrhage (5.3%) [9]. In a study in Port Harcourt, Nigeria, 22.0 % of the women who had episiotomy experienced significant blood loss [10]. Other reported episiotomy complications include dyspareunia [9,11], acute urinary retention, and vulva hematoma [12,13].

The morbidity associated with episiotomy may be due to several factors, which include: the type of episiotomy, patient's immune status, poor perineal hygiene, [13] the type of suture material used, [14,15] puerperal sepsis, and non-compliance with post-operative management [9,13]. In a systematic review in Johns Hopkins

University to determine the impact of surgeon's skill on patients' outcome, it was concluded that the level of a surgeon's technical skills was a good predictor of patient outcomes in some surgical procedures [16]. It is very possible that poor repair technique from the skill of the surgeon could have a negative impact on episiotomy repair and its outcome.

In many centers globally, episiotomy may be repaired by medical students, nurses, house officers, resident doctors, and consultants with varying degree of expertise. In most tertiary institutions in Nigeria, a great majority of the episiotomies are repaired by house officers, followed by resident doctors, and just a handful by consultants. Nurses are restrained from participating. In a study in Port Harcourt in Nigeria, it was observed that house officers repaired as much as 82.5% of the episiotomies, 15.5% by registrars, and only 2% by consultants [10].

A study done in University of Calabar in Nigeria reported that majority of the episiotomies 52.7% were repaired by house officers, resident doctors were next (42.9%), and consultants only repaired 4.4% [15]. In another hospital based study in Nigeria, 55.7% of episiotomies were repaired by house officers, 42.5 by residents and only 1.8% by consultants [17].

Though it has been acknowledged that the rank and skill of the surgeons greatly influences the outcome of surgical procedures, the research community has not focused attention on this subject matter with respect to episiotomy repair; there is dearth of articles and publications on this issue in the print and electronic media. This study intends to focus attention on the influence of the skill of the surgeon on episiotomy repair, using house officers as a fulcrum. House officers were chosen because in terms of skills and experience in the medical profession, they occupy the bottom of the ladder, and they repair most of the episiotomies.

1.1 Objectives

The present study aim to determine the complications of episiotomy repair by house officers, using repair by resident doctors as control. Specifically, it would evaluate the rate of wound dehiscence, perineal pain, delivery to repair interval, estimated blood loss, acute urinary retention, vulva hematoma and dyspareunia. The study would also determine the bio-data, and the socio-demographic characteristics of the subjects.

2. METHODOLOGY

2.1 Study Site

The study was carried out in the delivery ward of department of obstetrics and gynaecology, Niger Delta University Teaching Hospital (NDUTH) in Southern Nigeria.

2.2 Study Design

A comparative study of 400 parturients who were given episiotomy during delivery, the study was carried out from 10th of February 2020 to 4th of July 2020, Episiotomy repair was carried out in the labour ward by registrars (200 subjects), and house officers (200 subjects). All the episiotomies were mediolateral and repaired with polyglactic acid suture (vicryl) size 0.

2.3 Patient Selection

The subjects were booked parturients who delivered vaginally and had episiotomy incision and repair. However, for the purpose of follow-up and co-operation, detained information about this study was given to the patients. The patients were also informed that inclusion into this study would not pose any risk or complication as there would be no intervention, because episiotomy is usually repaired by house officers and resident doctors in this hospital. However, they were informed that their wish to pullout of the study would be honored appropriately.

2.4 Exclusion Criteria

Patients with pre-existing conditions that could affect wound healing were excluded from the study. These include un-booked patients, prolonged rupture of fetal membranes, chorioamnionitis, and women with immune-compromised conditions like HIV/AIDS. Also

excluded were women who had medical conditions that could impair wound healing, such as diabetes mellitus, and severe anemia.

2.5 Training of House Officers on Episiotomy Repair

In line with the NDUTH hospital policy, house officers do rotational posting for 3 months in the department of obstetrics and gynaecology. The departmental protocol on episiotomy mandates all newly posted house officers to undergo trained on episiotomy repair for 2 weeks, and certified competent before they can be independent. This was applied, and only trained house officers were used for this study.

2.6 Selection of Doctors for Episiotomy Repair

The process of selection of the resident doctors and house officers in this study was bases on the labour ward, and episiotomy protocols of the department of obstetrics and gynaecology, NDUTH. Patients who fulfilled the inclusion criteria were recruited until the number based on the sample size was completed.

The NDUTH labour ward protocol on episiotomy permits the accoucheur (nurses and doctors) to give episiotomy at their discretion, but to the best interest of the mother and the fetus. The protocol does not permit nurses or house officers to take charge of delivery of women with labour complications, such as breech presentation, multiple pregnancy or those requiring instrumental vaginal delivery. The resident doctors deliver most of these women and a few by the consultants on call.

With respect to episiotomy repair in NDUTH, it is carried out by either houses officers or the resident doctors. Nurses are not allowed to repair episiotomies, irrespective of their long period of service or job experience, but whenever they deliver women, they are empowered to use their discretion to call the doctors to repair episiotomies. However, the house officers are only permitted to repair uncomplicated cases; the resident doctors are called to repair episiotomies when danger is anticipated or encountered, such as postpartum hemorrhage etc.

In circumstances where the accoucheur is a resident doctor or a consultant, he or she repairs the episiotomies immediately after delivery. However, the consultant is at liberty to delegate

responsibility to the resident doctors if he so wishes.

2.7 Procedure for Repair of Episiotomy

With the patient in lithotomy position, the episiotomy wound was inspected with a good light source, and the apex was located. Those who were not given anesthesia before the episiotomy incision were given 5 ml of 1% lignocaine as local infiltration. A top up of another 5ml may be necessary if adequate anesthesia was not achieved. A vaginal pack was placed above the episiotomy wound when necessary, to keep blood away from the operation field.

Repair of episiotomy was carried out in three layers. Beginning from the apex, the vaginal skin was repaired with continuous sutures, and the perineal muscles and skin were repaired with interrupted sutures, respectively. Only size 0 polyglactic acid (vicryl) sutures on cutting needle was used for this study.

Following repair, a thorough inspection of the wound was carried out to ensure that hemostasis was achieved, the vaginal pack was removed, and a rectal examination was carried out to ensure that the anal canal was patent.

2.8 Postoperative Management and Follow-up

In line with the NDUTH labour ward and episiotomy protocols, immediately after delivery, it is mandatory for patients to be observed first in the labour ward, and then postnatal ward for at least 24 hours for possible delivery complications. Thereafter, those without complications are discharge.

With respect to this study, the women were monitored for postoperative episiotomy complications such as: hemorrhage, vulva hematoma, perineal pain, and acute urinary retention. During this period, patients were given health education on perineal hygiene, and counseling on compliance with postoperative management. They were taught how to prepare sitz bath and instructed to have regular sitz bath twice daily for 1 week. Patients were placed on oral cefuroxime 500 mg 12 hourly for 7 days, metronidazole 400 mg 3 times daily for 5 days, ferrous sulphate 200 mg daily, and folic acid 5 mg daily for 6 weeks. They were also placed on oral diclofenac sodium 50 mg 8 hourly for 1 week.

In concordance with the labour ward protocol, on completion of the 24 hours mandatory observation period, the patients without complications were given 6 weeks appointment for postnatal assessment. However, those who enrolled for this study were given 1-week appointment for assessment of wound healing. While at home, they were instructed to watch out for offensive vaginal discharge, wound sepsis, and wound dehiscence. They were also advised to report back to hospital whenever they develop complications that warrant hospital treatment.

At 1-week assessment, patients were assessed for perineal pain, wound dehiscence, and compliance with postoperative treatment. Those with complications were treated accordingly, including wound resuturing.

The final assessment was at 6 weeks postnatal visit. Patients were assessed for complete wound healing, perineal pain, and dyspareunia for those who have resumed sexual intercourse.

2.9 Sample Size

A total of 400 women who had episiotomy in labour were enrolled for this study. An appropriate sample size was calculated using Epi Info statistical software, based on an annual delivery rate of 800, an episiotomy rate of 30%, and confidence interval was set at 95%. Statistical significance was a p value < 0.05.

2.10 Collection of Data

A patient's information sheet (the research protocol) was filled for each patient by the researcher or the doctor on call, this commences about 6 hours after an episiotomy repair. The researchers name and phone number were given to each patient so that complaints would be appropriately attended to. In addition, the patients were called and reminded of their appointments when due, to enhance compliance.

Data obtained during the 24 hours inpatient monitoring period include: episiotomy repair to delivery interval, estimated blood loss, perineal pain, acute urinary retention, and vulva hematoma. Other data collected include patient's bio-data, indications for episiotomy, fetal demographic characteristics. At 1 week and 6 weeks postpartum, data was collected as stipulated in the postoperative management above.

2.11 Objective Evaluation of Perineal Pain and Wound Dehiscence

The main outcome measures in this study were perineal pain and wound dehiscence. For pain perception, the severity was evaluated using a visual analogue scale, calibrated in centimeters. At the time of assessment, the patients were asked to determine the level of pain perceived, with the assumption that at 0 cm there was no pain, and at 10 cm the pain was at its extreme. It was scored as mild (1-3 cm), moderate (3.1-6.0 cm) and severe (6.1-10 cm). Perineal pain was assessed between 6 and 12 hours after the episiotomy repair, this was necessary to avoid the effect of lignocaine on postoperative pain, and to accommodate patients who prefer to rest, especially those delivered at night. None of the patients in this study had epidural anesthesia.

Wound dehiscence was assessed by inspecting the episiotomy wound for break down, which could be partial or total separation of the sutures. In partial separation, only the vaginal skin was

involved. In total separation, dehiscence involves all the layers, including the perineal muscles.

2.12 Data Analysis

All data collected was coded and fed into spreadsheet using SPSS version 22 for windows, and Epi info version 7 software, and analyzed. Data was presented as mean with standard deviation, rates, and proportions, in Tables and Figures. Test of significance was by chi-square and Fisher Exact, and mean difference was compared using student's t - test. Statistical significance was set at p values ≤ 0.05 at 95% confidence interval.

3. RESULTS

Most of the women 182(45.5%) who had episiotomy repair were aged 25-29 years, and majority of these women 275(68.8%) attained tertiary education. Self-employed women 109(27.3%) were predominant, and most 194(48.5%) were multiparous (Para 1 - 4).

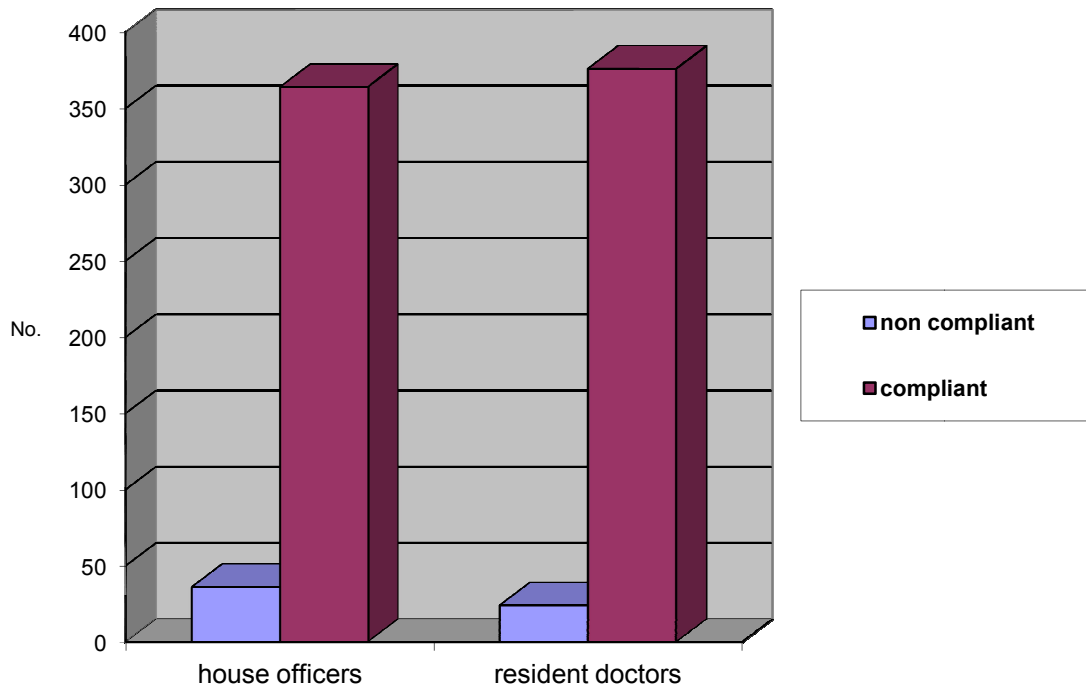


Fig. 1. Compliance with postoperative treatment at 7 days after episiotomy repair

Table 1. Bio-data

Bio-data	House officer (n = 200)	Registrars (n = 200)	Total (n = 400)
Maternal age			
≤19 years	5(1.3%)	4(0.5%)	9(1.8%)
20-24 years	35(8.8%)	22 (5.5%)	57(14.3%)
25-29 years	83(20.8%)	99(24.8%)	182(45.5%)
30-34 years	60(15.0%)	52(13.0%)	112(28.0%)
≥35 years	17(4.3%)	23(6.3%)	40(10.5%)
Educational level			
Non-formal	-	-	-
Primary	2(0.5%)	12(3.0%)	14(3.5%)
Secondary	60(15.0%)	51(12.8%)	111(27.8%)
Tertiary	138(34.5%)	137(34.3%)	275(68.8%)
Occupation			
Unemployed	37(9.3%)	33(8.3%)	70(17.7%)
Self-employed	55(13.8%)	54(13.5%)	109(27.3%)
Student	50(12.5%)	45(11.3%)	95(23.8%)
Civil servant	47 (11.8%)	53(13.3%)	100(25.0%)
Company staff	11(13.0%)	15(3.8%)	26(6.5%)
Parity			
Para 0	87(21.3%)	97(24.3%)	184(46.0%)
Para 1-4	103(25.8%)	91(22.7%)	194(48.5%)
≥ Para 5	12(3.0%)	10(2.5%)	22(5.5%)

Table 2. Indication for episiotomy, fetal demographic characteristics, delivery to repair interval, and mean blood loss

Variable	House officers (n = 200)	Registrars (n = 200)	Total (n = 400)	p value
Indication for episiotomy				
Rigid perineum	200(50.0%)	159(39.8%)	359(89.8%)	
Breech delivery	-	19(4.7%)	19(4.7%)	
Vacuum extraction	-	13(3.3%)	13(3.3%)	
Forceps delivery	-	8(2.0%)	8(2.0%)	
Shoulder dystocia	-	1(0.3%)	1(0.3%)	
Birth weight				
< 1500 grams	-	-	-	
1500 - 2500 grams	9(2.3%)	10(2.5%)	19(4.8%)	
2501 - 3999 grams	179(44.8%)	166(41.5%)	345(86.3%)	
> 4000 grams	12(3.0%)	24(6.0%)	36(9.0%)	
Fetal sex				
Male babies	88(22.0%)	106(26.5%)	194(48.5%)	
Female babies	112(28.0%)	94(23.5%)	206(51.5%)	
Delivery to repair interval				
< 15 minutes	15(3.8%)	5(1.25%)	20(5.0%)	0.02*
15-30 minutes	130(32.5%)	135(33.9%)	265(66.4%)	0.45
≥ 30 minutes	55(13.8%)	60(15.0%)	115(28.7%)	0.58
Mean blood loss				
	275.12 ± 148.3 mls	258.4 ± 126.6 mls	t = 1.21,	P = 0.22

Table 3. Postoperative complications following episiotomy repair

Complications	House officers (n = 200)	Registrars (n = 200)	Total (n = 400)	p value
Immediate post-operative complications (within 24 hours)				
No complication	65(19.5%)	92(23.0%)	157(39.3%)	0.005*
Perineal pain	124(31.0%)	104(26.0%)	228(57.0%)	0.04*
Pain with acute urinary retention	5(1.1%)	3(0.8%)	8 (1.9%)	0.30
Vulva hematoma	6(1.6%)	1(0.3%)	7(1.9%)	0.04
Complications at 7 Days Postpartum				
Wound healing				
Satisfactory wound healing	133(33.3%)	115(28.7%)	248(62.0%)	
Wound dehiscence	67(16.8%)	85(21.3%)	152(38.0%)	0.06
Perineal pain				
No perineal pain	137(34.3%)	119(29.8%)	256(64.0%)	0.06
Mild perineal pain	24(6.0%)	35(8.8%)	59(14.8%)	0.12
Moderate to severe pain	39(9.8%)	46(11.5%)	85(21.3%)	0.55
Complications at 6 Weeks after Episiotomy Repair				
Satisfactory healing	167(41.8%)	172(43.0%)	339(84.8%)	0.56
Wound dehiscence with Mild perineal pain	16(4.5%)	22(5.5%)	38(9.5%)	0.10
Moderate to severe pain	-	-	-	
Superficial dyspareunia	17(4.3%)	6(1.5%)	23(5.8%)	0.001*

By far, rigid perineum was the commonest indication for episiotomy, accounting for 359(89.8%), most of these 200(50.0%) were repaired by house officers. About 5.3% had instrumental vaginal delivery, and the least indication 1(0.3%) was shoulder dystocia.

A great majority of the babies delivered in this study 345(86.3%) were of average weight 2501-4000 grams, and fetal macrosomia (birth weight of ≥ 4000 grams) accounted for only 36(9.0%). Low birth weight babies were very few 19(4.8%), and episiotomies were not done for very low birth weight babies (birth weight < 1500 grams). Majority of the babies delivered in this study 206(51.5%) were female.

House officers were 3 times more likely to repair episiotomy early (within 15 minutes after delivery) than resident doctors. Odds Ratio = 3.16, [CI, 1.13 – 8.89]. $P = 0.02$, $X^2 = 5.26$.

Though the mean blood loss was higher in episiotomies repaired by house officers, 275.12 ± 148.3 mls vs. 258.4 ± 126.6 ml, there was no significant difference between the two groups.

$t = 1.21$, $P = 0.22$, mean difference = 16.70[-10.41, 43.81].

Assessment within 24 hours revealed that 92(23.0%) women whose episiotomies were repaired by resident doctors did not have complications, compared to 65(19.5%) repaired by house officers. $P = 0.005$, $X^2 = 7.64$ Odds ratio = 0.57[CI, 0.38, 0.85]. This implies that episiotomies repaired by house officers were more likely to result in postoperative complications. The effect seems to be more pronounced in perineal pain, and vulva hematoma.

Women whose episiotomies were repaired by house officers experienced more immediate

postoperative perineal pain (within 24 hours) $P = 0.04$, $X^2 = 4.08$, Odds ratio = 1.51[CI, 1.01, 2.24]. With respect to vulva hematoma, it was 6 times more likely to occur with episiotomies repaired by house officers, Odds Ratio = 6.15[CI, 0.73 – 51.60]. Fisher Exact = 0.06, $P = 0.04$.

At 7 days postpartum, there was no significant difference in the rate of wound dehiscence between episiotomies repaired by resident doctors and those repaired by house officers. $P = 0.06$, $X^2 = 3.44$. Odds ratio = 1.47[CI, 0.98 – 2.20]. Also, there was no difference in the rate of mild perineal pain, $P = 0.12$ [0.37 – 1.13], and moderate to severe pain $P = 0.55$ [0.53, 1.40].

At 6 weeks postpartum, there was no significant difference in wound dehiscence and perineal pain between episiotomies repaired by house officers and resident doctors. $P = 0.56$ [0.49, 1.47], and $P = 0.30$ [0.36, 1.38] respectively. Findings from this study also indicates that at 6 weeks, women whose episiotomies were repaired by house officers were 3 times more likely to experience superficial dyspareunia than those repaired by residents, Odds ratio = 3.00[CI, 1.16 – 7.79]. $P = 0.01$, $X^2 = 5.58$.

Compliance with postoperative treatment does not seem to exert a significant influence on the outcome of this study, and it's unlikely to be a confounding variable. Among the women whose episiotomies were repaired by house officers, 182(91.0%) complied with the postoperative treatment, while 18 women, 9.0% did not. Also, among those repaired by resident doctors, 188(94%) complied, while 12 women (6.0%) did not. The difference was not significant. $P = 0.46$, $X^2 = 0.54$, Odds ratio = 0.76[CI, 0.37 – 1.58].

4. DISCUSSION

The intent of giving episiotomy during delivery is to widen the diameter of the vulva outlet, which is believed by many to prevent maternal soft tissue damage such as spontaneous perineal tear, and fetal damage. In a study in University Hospital of Vienna in Australia, to determine the risk factors for perineal laceration during vaginal delivery using Univariate logistic regression models, non use of episiotomy ($P = 0.0001$), Low parity ($P = 0.004$) and large fetal head ($P = 0.005$) were identified as strong risk factors [18].

Complications of episiotomy commonly encountered in obstetrics practice include: wound dehiscence, perineal pain, and

postpartum hemorrhage. Others are acute urinary retention, vulva hematoma, and dyspareunia [19,20]. Following episiotomy repair, some risk factors have been identified to facilitate postoperative complications, these include patient's immune status, perineal hygiene, compliance with postoperative treatment, the type of suture material used, [9,12,20] and most probably the skill of the surgeon.

Whilst there are lots of studies with scientific proof and evidence backing the influence of most of these risk factors, there is dearth of information (including articles and publication) on the print and electronic media concerning the effects of the rank or skill of the surgeon on episiotomy repair. However a study on the outcome of episiotomy repair carried out at University of Calabar Teaching Hospital in Nigeria, compared the rate of postoperative pain among women whose episiotomies were repaired by house officers and resident doctors, and found no difference between the two groups, ($X^2 = 0.669$, $P = 0.5$) [17]. This is not in concordance with the findings from this study, as women whose episiotomies were repaired by house officers experienced more perineal pain. However, the reason for this disparity is not clear.

Hematoma of the vulva has been reported to result most commonly from trauma to the vulva. This could be secondary to perineal injury when a woman falls, vulva injury during sex, and following episiotomy repair [21,22,23]. Among these, episiotomy was identified as a strong risk factor, $P = 0.002$, [21] and mediolateral episiotomy was reported as most vulnerable. OR = 6.67[95% CI = 2.61–17.1] [22].

However, experience from obstetrics practice indicates that vulva hematoma secondary to episiotomy repair is very rare, and its importance relies exclusively on its potential to cause severe postpartum hemorrhage, sudden collapse and fatality [24]. The global incidence was reported as 1 in 300 to 1 in 1000 deliveries, [25] and in Istanbul, Turkey an incidence rate of 1-2/1000 deliveries was reported [26].

In this study, the rate of vulva hematoma was 6 times higher among women whose episiotomies were repaired by house offices. Poor surgical skills and inexperience may be responsible for this wide disparity. Experience in delivery units suggests that vulva hematoma most commonly occurs when episiotomy is repaired by junior doctors and midwives, and it is widely believed

that bleeding vessels at the apex of the episiotomy were not identified and ligated. This concept is buttressed by findings from a study where it was observed that as much as 85% of vulva hematomas were secondary to repaired episiotomies or perineal tears, and it was recommended that good surgical technique, with attention to secure hemostasis during the repair process could prevent hematoma formation [27].

Various studies have implicated episiotomy as one of the commonest causes of postpartum hemorrhage [28,10]. Though hemorrhage resulting from episiotomy could result from the type of episiotomy and extension of the incision during delivery, it's widely believed that the commonest risk factor is undue delay in episiotomy repair. In this study, even though house officers repaired episiotomy earlier than resident doctors, Odds Ratio = 3.16, [CI, 1.13 – 8.89], it did not reflect in the blood loss; there was no significant difference in the mean blood loss between the two groups, $t = 1.21$, $P = 0.22$. This is most probably because the estimated blood loss used in this study was not restricted to episiotomy incision and repair, but that following delivery. A more accurate result would be obtained if a method is designed to isolate blood loss exclusively due to episiotomy incision. This also calls for further studies.

With respect to wound dehiscence and wound healing, evidence from this study does not seem to support an influence from the rank or skill of the surgeon, as there was no significant difference between the two groups. This is most probably because wound dehiscence is dependent on presence of wound sepsis, poor perineal hygiene, and poor compliance with postoperative treatment, rather than the experience of the surgeon. Other variables (not included in this study), reported to significantly affect episiotomy wound healing are parity, frequency of self-perineal care, length of episiotomy wound and no of episiotomy sutures present [29].

Though various studies have established a link between episiotomy and dyspareunia, [9,11] the reason why women whose episiotomies were repaired by house officer in this study experience more dyspareunia is not clear, and it calls for further studies.

Taking into cognizance the disparity in the complication rate between the two groups, one can deduce that the training our house officers

receive on episiotomy repair, especially at the commencement of the posting in obstetrics and gynaecology needs review. Though it may be argued that internship is a training period, and their skill will improve as they get older in the profession, the fact remains that our women are compelled to bear the burden. I feel it is not a good idea to remain passive.

Literature search revealed that there is dearth of publications on the outcome of episiotomy repair by house officers. It is advocated that similar studies be done in other centers; this could promote a policy change that would benefit the overall interest of our women, especially if similar results are obtain with systematic review and meta analysis.

5. CONCLUSION

Women whose episiotomies were repaired by house officers experience more postoperative morbidity than those repaired by resident doctors, typified by postoperative pain, vulva hematoma and superficial dyspareunia. If house officers will continue to repair most of the episiotomies, a more intensive training is recommended.

CONSENT

Included in this study were pregnant women who registered for antenatal care in NDUTH, were given episiotomy during delivery, and consented to participate in this study. Written consent was then taken from those who accept to be followed-up.

ETHICAL APPROVAL

Approval to carry out this study was granted by the Research and Ethical Committee of the Niger Delta University Teaching Hospital, with reference number NDUTH/REC/0003/2020.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Bahtışen K, Aynur K, Pelin C, Gökçe D. Retrospective analysis of episiotomy prevalence. *J Turk Ger Gynecol Assoc.* 2017;18(4):190-4.

2. Alexander MF, Cande VA, Eri P, Mary ED, Jason DW, Mark PH, Jane D, Fergal DM. Variation in and factors associated with use of episiotomy. *Journal of American Medical Association*. 2015;313(2):197-9.
3. Olorunfemi OO, Akinbowale RE, Olayinka SI. Factors associated with episiotomy among parturients delivering in a tertiary care centre in Nigeria. *International Journal of Research in Medical Sciences*. 2015; 3(4):836-40.
4. Izuka EO, Dim CC, Chigbu CO, Obiora-Izuka. Prevalence and predictors of episiotomy among women at first birth in Enugu, Southern Nigeria. *Annals of Medical and Health Science Research*. 2014;4(6):928-32.
5. Garba, Ozegya MS, Abuakar IS, Ayyuba R. Episiotomy in amino Kano Teaching Hospital, Kano, Nigeria. A 3-year review. *Archives International Surgery*. 2016;6(1): 17-21.
6. Chigbu B, Onwere S, Aluka C, Kamanu C, Adibe E. Factors influencing the use of episiotomy during vaginal delivery in South Eastern Nigeria. *East African Medical Journal*. 2008;85(5):240-3.
7. Barnabas TA, Isaac OA, David AO. Relative frequency and predictors of episiotomy in Ogbomoso, Nigeria. *Internet Journal of Medical Update*. 2012;7(2):42-5.
8. Okeke TC, Ugwu EOU, Okezie OA, Enwereji JO, Ezenuyeaku CCK, Ikeako CG. Trend and determinants of episiotomy at the University of Nigeria Teaching Hospital, Enugu, Nigeria. *Nigerian Journal of Medicine*. 2012;21(3):304-6.
9. Savithri Raman. Effectiveness of self perineal care and aseptic perineal care towards healing of episiotomy wounds among postnatal mothers. *International Journal of Current Research and Academic Review*. 2015;3(8):359-66.
10. Tammy K. Nyengidiki, Solomon Nyeche. Post-episiotomy morbidity amongst parturients at the University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria. *The Nigerian Health Journal*. 2008;8(1):16-19.
11. Maryam A, Sedigheh A, Mohammad TS. Study of factors associated with postoperative pain following episiotomy in primiparous women at Mashhad Omalbanin Hospital. *Journal of Midwifery and Reproductive Health*. 2015;3(1): 305-14.
12. Hyacinth E. Onoh, Chris Akani. Rates and predictors of episiotomy in Nigerian women. *Tropical Journal of Obstetrics and Gynaecology*. 2004;21(1):44-5.
13. Bharathi A. Dharma Reddy DB, Sharath Kote. A prospective randomized comparative study of vicryl rapide vs chromic catgut for episiotomy repair. *Journal of Clinical and Diagnostic Research*. 2013;7(2):326-30.
14. Esa B, Meena S, Poonam L, Swati M, Arijit G. Comparison of impact of polyglactin 910 (Vicryl rapide) and chromic catgut sutures on perineal pain following episiotomy wound repair in eastern Indian patients. *Journal of the Scientific Society*. 2013;40(2):95-8.
15. Inyang-Etoh, Umoiyo. The practice of episiotomy in a university teaching hospital in Nigeria: How satisfactory? *International Journal of Medicine and Biomedical Research*. 2012;1(1):68-72.
16. Abid MA, Li YW, Cummings CW, Bhatti NI. Patient outcomes as a measure of surgical technical skills: Does surgical competency matter? A systematic review. *Otorinolaringologia*. 2016;66(4):99-106.
17. Emmanuel C. Inyang-Etoh, Aniekan M. Abasiattai, Augustine V. Umoh. Outcome of episiotomy repair among women in a tertiary health care institution in Nigeria. *Tropical Journal of Obstetrics and Gynaecology*. 2014;31(2):57-61.
18. Bodner K, Bodner-Adler B, Wagenbichler P, Kaider A, Leodolter S, Husslein P, Mayerhofer K. Perineal lacerations during spontaneous vaginal delivery. *Wien Klin Wochenschr*. 2001;113(19):743-6.
19. Perumal D, Selvaraju D. Comparative study of episiotomy repair: Absorbable synthetic versus chromic catgut suture material. *Int J Reprod Contracept Obstet Gynecol*. 2017;6(2):186-90.
20. Naseer M, Noreen H, Bilqis H, Sial SS. Short term outcome measures of chromic catgut versus vicryl rapide for episiotomy repair. *J. Soc. Obstet. Gynaecol. Pak*. 2018;8(4):212-7.
21. Rani, Shikha. Risk factors and incidence of puerperal genital haematomas. *Journal of Clinical and Diagnostic Research*. 2017; 11(5). DOI:10.7860/JCDR/2017/24060.9777

22. Cantekin İ, Hasan OT, Hakan T, Aslı O, Gonca G, Ayhan S, Nuri D. Evaluation of risk factors in women with puerperal genital hematomas. *The Journal of Maternal-Fetal & Neonatal Medicine*. 2016; 29(9):1435-9.
23. Practical bulletin: Prevention and Management of Obstetric Lacerations. *The American College of Obstetricians and Gynecologists, Women's Health Care Physicians*. 2016;128(1):1-15.
24. Akpa and Oguntayo. Vulva hematoma. *Archives of International Surgery*. 2012; 2(1):37-8.
25. Latika Sahu. *Vulval & Paravaginal Hematomas, Obstetrics & Gynecological Emergencies*. Publisher: Jaypee, New Delhi. 1st Edition. 2011;10-11.
26. Ahmet E, Ahter TT, Gulhan S, Cetin K, Cigdem AY, Ilter Y. Management of puerperal vulvovaginal hematoma with different suture technique; case report. *Medicine Science*. 2017;6(3):579-81
27. Ridgway LE. Puerperal emergency: vaginal and vulva hematomas. *Obstetrics and Gynecology Clinic of North America*. 1995;22:275-82.
28. Driessen M, Bouvier-Colle MH, Dupont C. Postpartum haemorrhage resulting from uterine atony after vaginal delivery: Factors associated with severity. *Obstet Gynecol*. 2011;117(1):21-31.
29. Manjula P, Ranjani PR, Anitha C. A study of factors influencing episiotomy wound healing. *International Journal of Nursing Education*. 2012;4(2):117-9.

© 2020 Howells and Abasi; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:

<http://www.sdiarticle4.com/review-history/60240>