

A Ten-Year Retrospective Review of Emergency Obstetric Hysterectomies in Nnamdi Azikiwe University Teaching Hospital, Nnewi

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Abstract: Background: In the field of obstetrics, challenges may surround the process of childbirth. One of such challenges could be life-threatening haemorrhage which may arise from varied causes. Emergency obstetric hysterectomy is a life-saving surgical procedure carried out in this instance when other methods of arresting this bleeding has failed. This has prompted this study to find out the prevalence, indications, outcome and complications of this procedure in our centre. **Materials and Methods:** This is a 10-year retrospective cross-sectional of all emergency obstetric hysterectomy (EOH) cases managed at Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria between 1st January, 2012 and 31st December, 2021. The case files of the women who had emergency obstetric hysterectomy were obtained from the medical records department of the hospital based on data extracted from the labour ward theatre register. Ethical approval for the study was obtained from the NAUTH Ethics Committee. Information relating to age, parity, gestational age, booking status, indication and type of hysterectomy, complications, and outcome were noted and evaluated. The data were compiled using Microsoft excel and analysed using SPSS version 25. **Results:** During the study period, 42 emergency obstetric hysterectomies (EOH) were performed out of 8,190 deliveries, resulting in a rate of 0.51%. The age group with the highest proportion of EOH was 30-39 years (60.7%). More unbooked women (89.3%) were affected than booked women. The most common indications were uterine rupture (53.6%) and uterine atony (32.1%). Subtotal hysterectomy was commonly performed (60.9%). Stable post-operative condition requiring only ward admission was achieved in 32.1% cases. Maternal mortality and fetal death occurred in 9.3% and 32.3% of the cases respectively. **Conclusion:** The prevalence of emergency obstetric hysterectomies in this study is comparative to that found in various studies done in other centres in Nigeria which is higher than that of high-income countries.

INTRODUCTION

Emergency obstetric hysterectomy (EOH) is defined as the removal of the uterus at the time of caesarean section or after vaginal delivery within the puerperium carried out as a life-saving measure in the face of life-threatening haemorrhage.¹ Emergency obstetric hysterectomy is carried out when there is severe uterine haemorrhage that has failed to be controlled by conservative measures such as uterine massage, uterine packing, uterotonics, uterine artery embolization, brace suture application, pelvic vessel ligation and administration of recombinant-activated factor VII.² Globally, the prevalence of emergency obstetric hysterectomy varies between 0.2 to 10.1 per 1000 deliveries. In Nigeria, a study done by Orazulike et al in Port-Hacourt the incidence was 5.3 per 1000

deliveries.³ It has been noted that the rate depends on the presence of comprehensive emergency obstetric services, poor socioeconomic status, mismanagement by poorly skilled health personnel and late referral.^{2,4}

The risk factors associated with EOH include advanced maternal age, abnormal placentation, higher parity and caesarean delivery in previous or current pregnancy.³ The indications for EOH vary between high-resource and low-resource countries. In high resource countries, abnormal placentation from high caesarean section rate accounts for most of the cases of EOH while in low-resource countries, uterine atony and ruptured uterus is the most common indication.^{2,5} Other indications include leiomyomas, coagulopathy and laceration of a uterine vessel not amenable to conservative measures.⁶

The decision to undertake emergency obstetric hysterectomy is associated with dilemma between saving the woman's life and the risk of certain infertility. However, it is important that the decision to embark on such a procedure is not taken too early or too late.^{2,6}

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Obstetric hysterectomy can be total or subtotal. Some studies have shown that subtotal is often done as it is easier and takes lesser time to achieve. Some other studies have not shown any significant difference between both procedures in terms of duration of surgery, transfusion requirements, intensive care unit (ICU) admission and duration of hospital stay.⁷

Certain complications can potentially follow EOH such as wound infection, septicaemia, disseminated intravascular coagulation, thromboembolism, pulmonary oedema, ventilator support, renal failure and death and as such these patients require close monitoring to avoid these complications.^{1,8}

This study was designed to determine the prevalence of emergency obstetric hysterectomy in Nnamdi Azikiwe University Teaching Hospital over a 10-year period, the indications for the procedure, outcomes and peripartum complications. This audit is necessary to formulate policies that aid improved service delivery for maternal and perinatal health.

METHODS

This was a retrospective cross-sectional study of women who had an emergency obstetric hysterectomy at Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, South-Eastern Nigeria between January 2012 and December, 2021. Only women who had emergency obstetric hysterectomy following caesarean section or vaginal delivery during the period were included. The labour ward and theatre records were reviewed to identify patients that had emergency obstetric hysterectomy during the study period. The patients' folders were retrieved from the medical records department. Information regarding patients' age, parity, gestational age, booking status, indication and type of hysterectomy, complications, and outcome were noted and evaluated. The data obtained was entered into Microsoft Excel spreadsheet and analysed using SPSS version 25.

Ethical Consideration

This study was approved by Ethics Committee of Nnamdi Azikiwe University Teaching Hospital Nnewi with approval number of NAUTH/CS/66/VOL.15/ VER 3/130/2022/064.

RESULTS

During the 10-year period, 42 EOH were performed out of 8,190 deliveries, resulting in a rate of 0.51%. The case records of only 28 women (66.6% retrieval rate) that had emergency obstetric hysterectomy were available and they constituted the sample for evaluation. The age group with the highest proportion of women who had EOH was 30–39 years 17 (60.7%). Majority of the women had secondary education 6 (21.4%), equal number had primary and tertiary education 3(10.7%). Most of the women were traders 18 (64.3%). The most affected parity were the multiparous women. Twenty-five (89.3%) patients were unbooked, with only three

(10.7%) booked. Sociodemographic characteristics are as shown in Table 1.

The indications for obstetric hysterectomy included uterine rupture 15(53.6%), uterine atony 9(32.1%) and morbidly adherent placenta 3(10.7%). These are depicted in Table 2. Seventeen (60.7%) cases had subtotal hysterectomy, while eleven (39.3%) cases had total hysterectomy. Total hysterectomy was done for all the cases of extensive cervical laceration and some cases of morbidly adherent placenta.

The outcomes included stable post-operative condition requiring postnatal ward admission in 9 (32.1%) cases, maternal ICU admission occurred in 5 cases (17.9%) and neonatal ICU admission occurred in 4 (14.3%) cases. The complications recorded in these patients included postoperative fever (3.6%), wound sepsis (7.1%), re-exploration (3.6%). There were 4 maternal deaths resulting in a case fatality rate of 14.2%. There were 9 perinatal deaths (32.1%). This is depicted in Table 4.

Table 1: Sociodemographic distribution of participants.

		Frequency	Percent
Age	<30 years	8	28.6
	30-39 years	17	60.7
	40-49 years	3	10.7
	Mean±STD	32.29±4.93	
Level of Education	Primary	3	10.7
	Secondary	6	21.4
	Tertiary	3	10.7
	Undocumented	16	57.2
Occupation	Unemployed	5	17.9
	Trader	18	64.3
	Civil servant	4	14.3
	Farmer	1	3.6

Table 2: Obstetric variable of participants.

		Frequency	Percent
Parity			
	1-4	22	78.6
	>4	6	21.4
	Mean±STD	3.46±1.23	
	Minimum	1	
	Maximum	6	
Booking status	Booked	3	10.7
	Unbooked	25	89.3
Mode of delivery	Spontaneous vaginal delivery	9	32.1
	CS	19	67.9

Table 3: Distribution of indications for emergency hysterectomy.

Indication for emergency obstetric hysterectomy		
Uterine atony	6	21.4
External cervical laceration	1	3.6
Morbidly adherent placenta	3	10.7
Uterine rupture	15	53.6
Uterine atony plus fibroids	1	3.6
Uterine atony plus cervical laceration	2	7.1
Total	28	100

Table 4: Distribution of type of surgery, outcomes and complications of hysterectomies.

		Frequency	Percent
Surgical procedure	Total hysterectomy	11	39.3
	Subtotal hysterectomy	17	60.7
Maternal outcomes	Stable post-op	19	67.8
	Maternal ICU	5	17.9
	Maternal death	4	14.3
Fetal outcomes	Fetal death	9	32.1
	Neonatal ICU	4	14.3
	None	15	53.6

Table 5: Complications of EOH.

Complications	Yes (%)	No (%)
Fever	1(3.6)	27(96.4)
Re-exploration	1(3.6)	27(96.4)
Wound sepsis	2(7.1)	26(92.9)
Neonatal ICU	4(14.3)	24(85.7)

DISCUSSION

In our centre for the study period, there were a total of 8, 190 deliveries and 42 cases of EOH. This gave a prevalence of 0.51% in our centre. This is similar to the prevalence of 0.51% reported in Sokoto by Nwobodo et al and 0.55% reported in Ogun by Jagun et al.² This is higher than the rates of 0.08% and 0.06% in Columbia and the USA respectively. This may be due to the higher number of unsupervised deliveries that lead to postpartum haemorrhage in developing countries like Nigeria.¹⁰ Majority of the women were in between 30-39 years and multiparous as well. This has been noted in similar studies from Nigeria and Cameroon.^{1,2} The aftermath of hysterectomy may be psychologically devastating for the woman who may desire to have more children. This study also found EOH to be done for

unbooked patients (89.3%) than patients who booked in our centre. These patients are often referred to our tertiary centre when complications have set in following vaginal delivery or caesarean section. This was also seen in studies by Omole-Ohonsi et al and Jagun *et al.*^{2,6}

It was also observed that more of the hysterectomies followed caesarean delivery than vaginal delivery. This has been noted in works done in developed countries as well as developing countries.^{2,5,6,10-12} Caesarean section is associated with increased risk of scarring, abnormal placentation and postpartum haemorrhage. In addition, following vaginal delivery, conservative measures are likely to be exhausted before resorting to hysterectomy unlike in caesarean section where the uterus is already in view.

The indications noted in this study were uterine rupture (53.6%) followed by uterine atony while morbidly adherent placenta and extensive cervical laceration were the least common. This distribution was observed in Port-Hacourt by Orazulike et al and in Ogun by Jagun *et al.*^{2,3} Similarly, studies done in Uganda and India recorded this pattern of indications as well.^{13,14} However, the opposite is the case for studies done in developed countries.^{7,8,10,15} This stresses the challenge and healthcare gap plaguing developing countries. The factors that may be responsible for this include the substandard health care practiced in certain facilities (unsupervised delivery and injudicious use of oxytocics). In addition, in this part of the world, women who are averse to a repeat caesarean section may go into labour that may be handled by unskilled or poorly trained birth attendants.

The most performed type of hysterectomy was subtotal hysterectomy. This may be due to the ease and shorter time required to achieve haemostasis. Total hysterectomy was carried out in the cases of cervical lacerations. This is similar to the data from China by Zhang *et al.*⁷

Emergency obstetric hysterectomy can be safely carried out with a healthy mother and baby as it happened for 9 patients in our study. Intensive care unit admission was required for 5(17.9%) women and 4(14.3%) babies respectively. Maternal death and fetal death occurred in 4(14.3%) women and 9(32.1%) babies respectively. This highlights the importance of addressing preventable factors that cause postpartum haemorrhage leading to EOH. It also stresses the importance of timely execution of EOH if required for better outcomes. The cases of maternal mortality were unbooked patients who were referred to our facility in very critical clinical states. This was noted in the study by Orazulike *et al.*³

Complications can arise from EOH which can lead to significant morbidity and mortality. This study observed wound infection (7.1%), post-operative fever and re-exploration in 3.6% cases. Different studies found coagulopathy, urinary tract y and acute renal failure.¹⁶⁻¹⁸ These were not found in this study.

The limitations of this study were the retrospective nature and poor documentation that did not capture adequate data in each case such as extent of conservative measures applied before resorting to emergency obstetric hysterectomy.

The findings of this study emphasises a need to address the preventable causes that lead to intractable obstetric haemorrhage by enhancing maternal healthcare.

As a means of addressing the common indications that lead to EOH in our country, there is need for patient education and awareness at the community level and among all health care providers for proper management of labour and timely referral as required. The government should also renew efforts to equip health care facilities.

In conclusion, emergency obstetric hysterectomy is a procedure of last resort to address intractable obstetric haemorrhage. It is life-saving but can also be fraught with complications. This should be handled by trained specialists for better outcome.

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Received on 20-11-2022

Accepted on 5-12-2022

Published on 31-12-2022

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