Original Article

Emergency Obstetric Hysterectomy in a Tertiary Hospital in Sokoto, Nigeria

Nwobodo EI, Nnadi DC

Department of Obstetrics and Gynecology, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria

Address for correspondence:
Dr. Nwobodo Emmanuel Ikechukwu, Department of Obstetrics and Gynecology, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria.
E-mail: nwobodoei@yahoo.com

Abstract

Background: Emergency obstetric hysterectomy (EOH) is a life-saving procedure which is often performed to treat some obstetric complications, as a last resort, to prevent maternal mortality. **Objectives:** This study was designed to determine the rate, indications, and complications of the EOH procedure at Usmanu Danfodito University Teaching Hospital (UDUTH), Sokoto. **Materials and Methods:** This retrospective study involved all the patients who had EOH at UDUTH, Sokoto, Nigeria, between January 2005 and December 2010. The case records of these patients were retrieved from the medical record library and information relating to age, parity, booking status, indications, type of hysterectomy, cadre of the surgeon, type of anesthesia, and complications of the procedure were extracted. The data were processed *via* SPSS version 11.5 and the χ^2 test was used to analyze some of the results with the confidence limit set at 95%. **Results:** During the 6-year period, 83 EOH were performed out of 16,249 deliveries giving the rate of the former as 0.51%, i.e. 1 in 196 deliveries. However, the case records of only 74 patients (82.9%) were available for the study. The rate of EOH increased with advancing maternal age and increasing parity. The majority of the patients (89.2%) were unbooked for antenatal care, and the rate of the procedure among these patients (1.82%) was significantly higher than 0.07% observed amongst booked subjects ($P<0.001$). The main indication for the procedure was ruptured uterus (93.2%) and the majority of the patients (95.9%) had subtotal hysterectomy. Anemia (66.2%), excessive hemorrhage (35.5%), septicemia (18.9%), and wound infection (16.2%) were the leading complications. Excessive hemorrhage was significantly higher in the procedure performed by the senior registrars (51.2%) compared to those undertaken by consultants (16.2%); $P=0.03$. The case fatality rate of the EOH procedure was 12.1%. However, the case fatality rates in the procedure performed by consultants and senior registrars were 6.5% and 16.3%, respectively. **Conclusion:** The rate of EOH in the centre is relatively high and ruptured uterus is responsible for the majority of the procedure. Prevention of prolonged obstructed labor, and therefore uterine rupture, through antenatal care and supervision of labor will reduce the rate of EOH whereas performance of the procedure by the most experienced surgeon will minimize the maternal morbidity and mortality.

Keywords: Emergency obstetric hysterectomy, Ruptured uterus, Sokoto

Introduction

Obstetric hysterectomy refers to the surgical removal of a pregnant uterus or a recently pregnant uterus.[1] This life-saving obstetric procedure has been in use for more than 100 years. Edward Porro (1876) published the first case report of the emergency obstetric hysterectomy (EOH) which was performed in the case of intractable postpartum hemorrhage.[2] In the past, the majority of EOH was performed for postpartum hemorrhage usually caused by uterine atony.[2,3] However, this indication for the procedure is less common in these days due to availability of potent uterotonic agents together with the advent of less invasive surgical alternatives such as uterine tamponade, B Lynch suture, and uterine artery/internal iliac artery ligation.[3,4] One of the challenges faced by surgeons while performing the EOH procedure is the termination of the mothers' reproductive career. Besides, the procedure is frequently undertaken when the condition of the patient is

Access this article online

Quick Response Code:

Website: www.amhsr.org

DOI: 10.4103/2141-9248.96935

too critical to withstand the risk of surgery.[5,6] Increase in blood supply to the uterus and alteration in pelvic anatomy during pregnancy predispose to excessive primary hemorrhage and potential injury to the bladder/ureter, respectively.[3] In developing countries, limited availability of blood together with financial constraints constitute additional challenges which increase the operative morbidity and mortality.[7-9]

There is virtually no report in the literature on EOH in Sokoto, North-western Nigeria. This necessitated this study. UDUTH Sokoto, a 500-bed tertiary hospital, provides health services to Sokoto, Kebbi, and Zamfara states in North-western Nigeria. It also receives patients from neighboring Niger Republic. The population served is mainly Hausa/Fulani and of Islamic faith. The main occupation of the people is subsistence farming and animal husbandry. Early marriage, high parity, and poor utilization of prenatal services are common among the population. Obstructed labor arising from these sociocultural factors often result in uterine rupture which sometimes necessitates hysterectomy.[10,11]

Materials and Methods

In this a retrospective study, the case records of all the patients who had EOH at UDUTH Sokoto between January 2005 and December 2010 were sought in the medical record library. Information relating to age, parity, booking status, indications, type of hysterectomy, cadre of the surgeon, type of anesthesia, and complications of the procedure were extracted. The data were processed *via* SPSS version 11.5 and the χ^2 test was used to analyze some of the results with the confidence limit set at 95%.

Results

During the 6-year period, 83 EOH were performed out of 16,249 deliveries giving the rate of the former as 0.51%, i.e. 1 in 196 deliveries. The case records of only 74 patients (89.2%) were available for study. The age of the patients ranged from 17 to 45 years with a mean (SD) of 30.3 (5.2) years while the parity was between 1 and 14 with an average of 6. As depicted in Table 1, the rate of EOH increased with advancing maternal age reaching a peak at 31–35 years. Similarly, the rate of the procedure increased with increasing parity. Nine patients (12.2%) were booked for antenatal care while 65 (77.8%) had no prenatal care. Seven patients among the former attempted to deliver at home before they were brought to the hospital when they encountered complications. The rate of EOH was significantly higher in unbooked patients than the booked group ($P<0.001$).

The main indication for the surgery, as shown in Table 2, was the ruptured uterus. General anesthesia was used in all the cases. Thirty-three patients (44.6%) were in shock at admission. All the patients were transfused using 500 ml to 3.5 l of blood (mean: 1.6 l). The procedure was undertaken by a senior registrar and consultants in 43 (58.1%) and 31 (41.9%) patients, respectively. Thirty-eight patients (51.4%) had the surgery within 4 h of the decision to embark upon the procedure while the rest (48.65) had it after 4 h due to nonavailability of grouped/cross-matched blood. Seventy-one patients (95.9%) had subtotal hysterectomy while 3 (4.1%) had the entire uterus removed.

Table 3 illustrates the intraoperative and postoperative complications. Postoperative anemia (66.2%), excessive hemorrhage (36.5%), septicemia (18.9%), and wound infection (16.2%) were the leading complications. Excessive hemorrhage was significantly higher in the procedure performed by the senior registrars compared to those undertaken by consultants (51% *vs.* 19.4%; $P=0.03$). There were nine maternal deaths giving a case fatality of 12.1%. Two maternal deaths were encountered in the procedure undertaken by consultants while 7 occurred among those performed by senior registrars giving the case fatality rates of 6.5% and 16.3%, respectively. All the maternal deaths occurred in unbooked patients, and the causes were continuing hemorrhage (7) and septicemia (2).

Discussion

The majority of EOH procedures were performed in the past for postpartum hemorrhage caused by uterine atony in most cases.[2,3] However, advances in the management of

Table 1: Sociodemographic characteristic of the patients

	Number of deliveries	Number of EOH	Rate of EOH (%)
Age (years)			
16-20	3087	6	0.19
21-25	3738	9	0.24
26-30	4225	25	0.59
31-35	3412	23	0.67
36-40	1462	9	0.62
>40	325	2	0.62
Total	16249	74	
Parity			
1	2601	1	0.04
2	3413	6	0.18
3	3736	8	0.21
4	3087	9	0.29
5	2114	16	0.76
≥6	1298	34	2.62
Total	16249	74	
Prenatal care			
Yes	12674	9	0.07
No	3575	65	1.82
Total	16249	74	

EOH: Emergency obstetric hysterectomy

Table 2: Indications for emergency obstetric hysterectomy

Indications	No.	%
Ruptured uterus	69	93.2
Postpartum hemorrhage	2	2.7
Puerperal sepsis	2	2.7
Morbidly adherent placenta	1	1.4
Total	74	100.0

Table 3: Intraoperative/postoperative complications

Complications	No.	%
Anemia	49	66.2
Excessive hemorrhage[a]	27	36.5
Septicemia	14	18.9
Wound infection	12	16.2
Maternal death	9	12.2
Bladder injury	6	8.1
Vesico-vaginal fistula	4	5.4
Urinary tract infection	4	5.4
Pneumonia	3	4.1
Burst abdomen	3	4.1
Bowel injury	1	1.4
Psychosis	1	1.4

[a]Some patients had more than one complication

postpartum hemorrhage (PPH) which include the use of potent uterotonic agents, less invasive surgical alternatives (e.g. uterine tamponade), and multidisciplinary approaches have reduced its contribution to EOH.[3,4] The rate of procedure in this study (0.51%) was higher than 0.23% reported in Benin City, south-south Nigeria,[6] 0.28% in Democratic Republic of Congo,[9] 0.26% in India[12] and 0.06% in Canada.[13] The reason why the rate of EOH in this study is twice higher than that in Benin City, Congo, and India may be due to high incidence of ruptured uterus in Sokoto (1 in 76 deliveries) resulting from obstructed labor.[11] Early marriage and poor utilization of obstetric services, which are common practices in Sokoto, predispose the population to obstructed labor.[10] Advancing maternal age and increasing parity which were associated with the corresponding increase in the rate of EOH in this study have been observed by previous authors in developing countries.[7,9] Maternal age and parity are usually related and obstetric complications associated with increasing parity such as obstructed labor/uterine rupture may necessitate hysterectomy.[14] High uptake of family planning and obstetric services coupled with better nutrition and small family size in developed countries such as Canada have resulted in low incidence of obstructed labor/ruptured uterus and therefore low incidence of EOH among their population.[1,9]

The main indications for the procedure in this study (ruptured uterus) have similarly been reported by some authors in Nigeria[6-8] and Pakistan.[1] This may be related to high parity and poor utilization of obstetric services they share in common.[10,11,14] Postpartum hemorrhage which accounted for only 2.7% of the EOH in the study was responsible for the majority of the procedure performed in India[12] and Canada;[13] whereas in USA[3] and Poland[15] morbidly adherent placenta was the main indication for the surgery. Advances in the management of postpartum hemorrhage, particularly the use of less invasive surgical approach such as uterine tamponade, B-Lynch suture, and uterine artery/internal artery ligation, have led to a dramatic fall in the usage of EOH in the management of the condition.[2-4] The high rate of cesarean section in developed countries occasioned by fear of litigation, patients' request, and frequent use of electronic fetal monitoring in labor might explain why morbidly adherent placenta was the main indication for EOH amongst their population.[3,15] The majority of the patients in this study (98.6%) had subtotal hysterectomy. In Democratic Republic of Congo and Benin City, subtotal hysterectomy was performed in 80.0% and 43.5% of cases, respectively.[6,9] The higher rate of subtotal hysterectomy in this study and studies performed in Democratic Republic of Congo may be due to the condition of the patients at presentation as 46.6% in the former and 32.5% in the latter were in unstable condition at the time of admission thus necessitating limited surgery to minimize further and fatal blood loss.[9] The indication for EOH in Benin City may be responsible for the choice of total hysterectomy in most of their cases (56.5%). This is because placenta praevia, which was responsible for 22.5% of the cases in Benin, and may require total hysterectomy as the only means of controlling continuing hemorrhage which are often associated with the condition.[6,14] The main complications of the procedure (anemia, excessive hemorrhage, septicemia, and wound infection) have also been reported by some authors in Nigeria[6-8] and Congo Republic[9] and are frequently related to the indication for the surgery, condition of the patient at admission, availability of blood, and the skill of the surgeon.[8] The case fatality rate of 10.8% in this study was comparable to 12.5% in Benin City[6] and 10.9% in India[12] but higher than that in developed countries (<0.1%)[16-18] where the health services are not only better but are also well utilized by the population.[14]

In conclusion, the rate of EOH in the centre is relatively high and ruptured uterus is mainly responsible for the majority of the procedure. Prevention of obstructed labor and consequently ruptured uterus through antenatal care and supervision of labor will reduce the rate of EOH in the study population while performance of the procedure by the most experienced surgeon will minimize the maternal morbidity and mortality.

References

1. Siddiq N, Ghazi A, Jabbar S, Ali T. Emergency obstetrical hysterectomy (EOH): A life saving procedure in obstetrics. Pak J Surg 2007;23:217-9.
2. Larry C, Gilstrap F 3rd, Cunningham G, Vandorten JP. Obstetric hysterectomy. Operative Obstetics. 2nd ed. New York: McGraw Hill; 1995. p. 275-91.
3. Incerpi MH. Operative delivery. In: Decherney AH, Nathan L, Goodwin TM, Laufer N, editors. Current Diagnosis and Treatment in Obstetrics and Gynaecology. 10th ed. New York: McGraw Hill; 2007. p. 461-76.
4. Paterson-Brown S. Obstetric emergencies. In: Edmonds DK, editor. Dewhurst's Textbook of Obstetrics and Gynaecology. 17th ed. Oxford: Blackwell Publishing; 2007. p. 461-76.
5. Okogbenin SA,Gharoro EP, Otoide VO, Okonta PI. Obstetric hysterectomy: Fifteen years' experience in a Nigerian tertiary centre. J Obstet Gynaecol 2003;23:356-9.
6. Ezechi OC, Kalu BK, Njokama FO, Nwokoro CA, Okeke GC. Emergencyperipartum hysterectomy in a Nigerian hospital: A 20-year review. J Obstet Gynaecol 2004;24:372-3.

7. Udoma EJ, John ME, Etuk SJ, Ekanem AD. Morbidity and mortality following emergency obstetric hysterectomy in Calabar. Nigeria. Niger J Clin Pract 2003;6:52-5.
8. Mathe JK. Obstetric hysterectomy in rural democratic republic of the Congo: An analysis of 40 cases at Katwa Hospital. Afr J Reprod Health 2008;12:60-6.
9. Shehu DC. Socio-cultural factors in the causation of maternal morbidity and mortality in Sokoto. In: Kisekka NM, editor. Women Health Issues in Nigeria: Zaria: Tamaza Publishing Company Limited; 1992. p. 204-14.
10. Ekele BA, Audu LR, Muyubi S. Uterine rupture in Sokoto Northern Nigeria– are we winning? Afr J Med Med Sci 2002;29:191-3.
11. Shubham G, Anupama D, Gaurav B, Ratna T. Obstetric hysterectomy in the modern day obstetrics: A review of 175 cases over a period of 11 years. J Obstet Gynaecol India 2001;51:91-3.
12. Baskett TF. Emergency obstetric hysterectomy. J Obstet Gynaecol 2003;23:353-5.
13. Harrison KA, Bergstorm S. Poverty, deprivation and unsafe motherhood. In: Lawson JB, Harrison KA, Bergstrom S, editors. Maternity Care in Developing Countries. London: RCOG Press 2001. p. 1-20.
14. Hayman R. Caesarean section. In: Luesley DM, Baker PN, editors. Obstetricsand Gynaecology Evidence-based Text Book for MRCOG. London: Arnold Publishers; 2004. p. 381-90.
15. Rabenda-Łacka K, Wilczyński J, Radoch Z, Breborowicz GH. Obstetrical hysterectomy. Ginekol Pol 2003;74:1521-5.
16. Lau WC, Fung HY, Rogers MS. Ten years experience of caesarean and postpartum hysterectomy in a teaching hospital in Hong Kong. Eur J Obstet Gynaecol Reprod Biol 1997;74:133-7.
17. Amos AA, Olufemi AO. Emergency obstetric hysterectomies (how many are potentially preventable?): Year experience in Saskatoon. J Surg 2004;20:81-7.
18. Kant A, Wadhwani K. Emergency obstetric hysterectomy. J Obstet Gynaecol India 2005;55:132-4.

How to cite this article: Nwobodo EI, Nnadi DC. Emergency obstetric hysterectomy in a tertiary hospital in Sokoto, Nigeria. Ann Med Health Sci Res 2012;2:37-40.

Source of Support: Self-sponsored. **Conflict of Interest:** None declared.