

EMERGENCY OBSTETRICAL HYSTERECTOMY AMONG POST-PARTUM HEMORRHAGE WOMEN –PATTERN OF OCCURRENCE IN TERTIARY CARE HOSPITAL

Majida Ali¹, Mawish Memon², Beenish Ghafar¹, Mahak Memon³, Shazia Shaikh¹, Fozia Chandio⁴

¹Department of gynecology and obstetrics (unit I) Shaheed Mohtarma Benazir Bhutto Medical University (SMBB) Larkana, Pakistan, ²Department of Biochemistry, Pir Syed Abdul Qadir Shah Jeelani Institute of Medical Sciences, Gambat, Pakistan, ³Department Biochemistry, People's University of Medical and Health Sciences for Women (PUMHSw), Shaheed, Benazirabad, Pakistan, ⁴Department of Gynea and Obstetrics Shaikh Zaid Women Hospital Larkana, Pakistan

Correspondence:

Dr Majida Ali
Department of gynecology and obstetrics,
Shaheed Mohtarma
Benazir Bhutto Medical University (SMBB)
Larkana, Pakistan

Email:ma-shorimajidaali@gmail.com

DOI:
10.38106/LMRJ.2024.6.2-04

Received: 09.06.2024

Accepted: 26.06.2024

Published:30.06.2024

ABSTRACT

Postpartum hemorrhage (PPH), is an excessive bleeding after giving birth, it is a major cause of maternal mortality and morbidity around the world. In the current era of obstetrics, emergency obstetric hysterectomy (EOH) is still a crucial treatment that can save lives. This study was designed to determine causes, frequency, complications of emergency cesarean /obstetrical hysterectomy in Postpartum hemorrhage (PPH) in tertiary care hospital. All the patients gave birth during 4 years (i.e. 1January 2020- 31 December 2023) were included in this study. The obstetrical patients admitted were 13532, out of which 154 underwent emergency hysterectomy. Their biodata, sign and symptoms, diagnosis, fluid/blood transfusion, morbidity, operative intervention, maternal mortality, and follow up were taken on a proforma. The data thus taken was compiled and analyzed. The incidence of EOH was 11.4/1000 obstetrical cases, mostly (85.5%) were referral from elsewhere, while 20 (13.79%) were registered as booked who took proper antenatal care. Multipara (94%) was predominantly reported with post-partum hemorrhage (n=79, 51.29%). The maternal mortality was 15.59% (n= 19). Regular and scheduled antenatal care, early diagnosis, early referral, timely decision, blood transfusion with arrangement of surgery by an experienced obstetrician are crucial to justify EOH.

KEY WORDS: Emergency obstetrical hysterectomy (EOH), PPH, Cesarean section, Postpartum hemorrhage.

INTRODUCTION

Postpartum hemorrhage (PPH), is an excessive bleeding after giving birth, it is a major cause of maternal mortality and morbidity all around the world. Worldwide, 27% of maternal fatalities are caused by postpartum hemorrhage, which is defined as blood loss of at least 500 ml following delivery (1). Common reason of maternal morbidity and mortality, worldwide, where > 125000 women die of PPH annually, it is major cause of maternal death in United Kingdom. The incidence of PPH is 1.6% in Pakistan (2). More recent clinical investigations have shown that the incidence of PPH \geq 500 mL is 33.7% in the UK and 22% in Australia (3). Postpartum hemorrhage is caused by the failure of the uterus to contract appropriately after birth. There are two types of postpartum hemorrhage, primary postpartum hemorrhage (PPPH) and secondary postpartum hemorrhage (4). Primary PPH is excessive vaginal loss of blood about 500 ml or 1000ml, or more during labor within 1 day. Secondary PPH is an excessive vaginal loss of blood after 1 day till 6 weeks after labor, it is usually caused by retained placenta, infection or placental polyp. It is also defined as blood loss leading to at least 10% loss of hematocrit after delivery (5). There are various risk factors associated with PPH such as antepartum hemorrhage, commonly associated factors include placental abruption, placenta previa and vasa

previa. Over distended uterus due to multiple pregnancies, polyhydramnios, macrosomia are also associated with PPH. Hypertensive disorders in pregnancy such as PIH, Pre-eclampsia, eclampsia are related factors in addition to prolonged labor, infection and obesity (6). Other causes of PPH include atonic uterus (i.e. most common cause seen in nearly 70% of PPH cases), genital tract lacerations, retained tissues of placenta, uterine inversion, uterine rupture, disseminated intravascular coagulation (4) are prominent alterations that can lead to PPH (7).

There are various strategies for management of atonic uterus mediated PPH. It is managed through the call for help, inform Operation Theater, inform anesthetist, quick assessment of vitals, blood pressure, active management of third stage by injection oxytocin 10 IU I/M, 2 wide bore I/V line, fluid assessment, crystalloids (R/L) 1500 ml, send blood sample for investigation, blood arrangement, catheterize the bladder (empty bladder to allow uterus to contract and monitor I/O charting, Immediate Bimanual uterine pressure, start uterotonic, Oxytocin 20 IU in 500 ml N/S I/V infusion (no I/V bolus which may cause hypotension and cardiac arrest), Methergin 0.2mg I/V OR I/M (contraindicated in cardiac patients, preeclampsia, peripheral vascular disease). Causing vasoconstriction and sever uterine contraction, misoprostol 800 ug per rectum P/R (PGE1), carboprost (PGF2 Alpha) 0.25mg IM every 15 min for maximum of 8 doses. Also check if placenta is completely delivered or not, and check for genital tract lacerations, balloon tamponed 500 ml of saline in uterus ideally in OT if uterus still remains relax then surgical option should be considered (8,9). It is also treated as surgical method, as uterine compression, B-lynch, hayman, cho sutures, cervico-isthmo statures, bilateral uterine artery embolization, Internal iliac artery embolization (branch of anterior division of ii a, Bilateral ovarian artery embolization. Hysterectomy must be considered as the last option (10).

The overall aim of our study was to determine causes, frequency, complications of emergency Cesarean /obstetrical hysterectomy in postpartum hemorrhage along with maternal and perinatal mortality and morbidity in a tertiary care set up.

MATERIALS AND METHODS

This was an observational prospective study conducted from 1st Jan 2020 to 31 Dec 2023, at the Department of Gynecology and Obstetrics, Sheikh Zayad women Hospital Larkana, Pakistan. The proforma filled the patients biodata i-e age, mode of admission, parity, status of registration during antenatal period, present complaints, detailed previous obstetrical history, gynecological history, pervious cesarean sections, antenatal risk factors, mode of delivery, assisted vaginal delivery use of drugs like induction/ augmentation of labor (prostaglandin, misoprostol, oxytocin), estimated of blood loss (preoperative, intraoperative, postoperative) need of blood transfusion, maternal complication and mortality were noticed. All EOH were preferred after 28 weeks of pregnancy, prophylactic antibiotics, high-risk consents, and proper counseling. Data was analysed by using Statistical Package for Social Sciences (SPSS version 22). Data was calculated in frequencies and percentage.

RESULTS

A total of 13532 obstetrical cases were admitted during this research duration. Out of which 154 required EOH account with a frequency of 11.4/1000 subjects. Only 20 (13.79%) were booked. Referral subjects were

from private setup and basic health units, accounted for 80 (55.17%) subjects, while other referred from Baluchistan and interior Sindh were 34 (23.44%), parity ranging 1-15, only 6 (3.89%) cases were Para 1-2, the remaining 148 (96.10%) being multipara.

The commonest cause of EOH was uterine rupture found in 21 (13.63%) patients. The causes of placental origin were noticed in 20 (32%) causes PPH 79 (51.29%) as shown in Table I. The blood/ FFP/Platelet transfusion were recorded to all the patients ranging from 4-10 units, FFP fresh frozen plasma 4-8, and platelet transfusion 4-8 units. Subtotal abdominal hysterectomies were done in 132 (84.71%), and total hysterectomies patient 22 (14.28%). The wound infection was seen in 19 (15.07%) patients and DIC occurred in 15 (11.90%) cases each after EOH. The rupture of urinary bladder was seen in 13 (10.31%) patients and broad ligament hematoma in 14 (11.11%) patients. Maternal mortality was 19 (15.90%) cases, while the rest 135 (87.66%) were discharged within 5 to 26 days. The number of intrauterine deaths 38 (24.67%), and the rest were alive births. Summary of the results is presented in Figure 1 and Table 1.

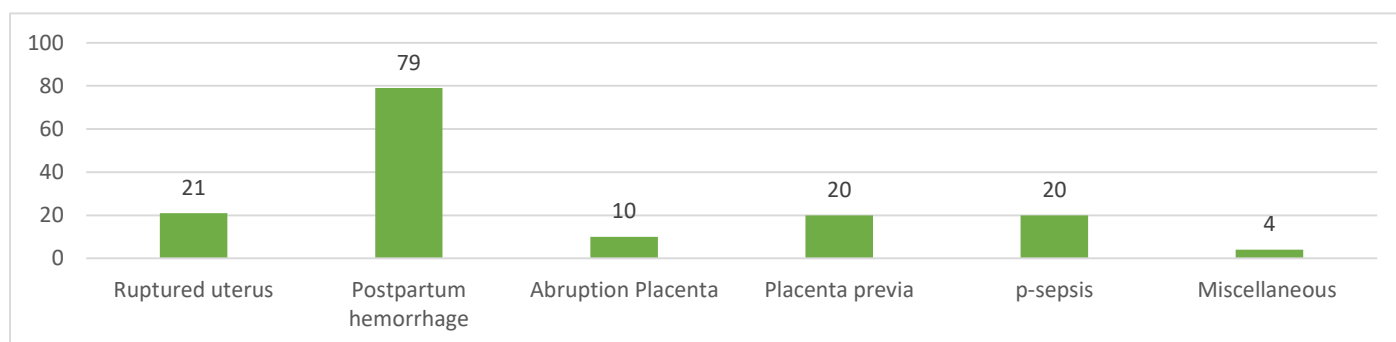


Figure. 1: Causes of postpartum hemorrhage

Table 1: Morbidity and mortality in women presenting with postpartum hemorrhage

Complication	No. of patients	%
Febrile morbidity	13	10.31
Disseminated Intravascular Coagulation	15	11.90
Wound infection	19	15.07
Urinary tract infection	12	9.52
Broad ligament hematoma	14	11.11
Urinary bladder rupture	13	10.31
Repeat laparotomy	15	11.90
Thromboembolism	06	4.76
Mortality	19	15.90
Anuria	06	4.76
Other remain normal no complication	26	20.63

DISCUSSION

The frequency of emergency obstetric hysterectomy varies significantly between nations and even within institutions. Postpartum hemorrhage, is an excessive vaginal bleeding after giving birth, it is a major cause of maternal mortality and morbidity globally. Postpartum hemorrhage is caused by the failure of the uterus to contract appropriately after birth (11), the results of our study are also consistent with the available literature. An essential part of treating potentially fatal obstetric problems is the EOH. The 11.4/1000 was frequency of EOH in the study, which is also consistent with previously reported studies (12). New surgical techniques, multidisciplinary approach, and utero tonic agents have declined the occurrence of EOH, though it still counts a lifesaving method in obstetric units. This is true and obviously that our unit linked to private and basic health units' hospitals where most of cases are dealt by traditional birth attendant (TBAs), and lady health visitors and delayed referral result in a complicated condition of the pregnant women (13,14).

More than 80,000 maternal fatalities occurred globally in 2015, and the present criteria is insufficient for identifying this significant cause of death in a timely manner (15). PPH is one of the prominent causes of maternal mortality and morbidity in developed and under developed countries. The recommendations for PPH care emphasize the need of early evaluation of coagulation abnormalities and PPH severity (16). Timely and intensive care is essential for the well-being of mothers. Impaired hemostasis is indicative of the severity of the bleeding and can happen with severe PPH. After visual assessment, blood loss during PPH is consistently understated by around 50%–75%, with the amount of underestimating rising with blood loss volume (17).

Acute obstetric coagulopathy can be a consequence of severe PPH and the mechanisms of this particular coagulopathy are not fully understood. They result from complex interactions between dilution, leakage into the bleeding flow, local consumption, and increased fibrinolysis (18). In some acute obstetric complications, such as abruptio placenta or amniotic fluid embolism, coagulopathy occurs at a very early stage and becomes the main cause of major PPH. The massive release from placenta, amniotic membranes, and amniotic fluid of both tissue factor, leading to important activation of coagulation, and pro-fibrinolytic molecules such as urokinase plasminogen activator may contribute to fibrinolysis and fibrinogenolysis (19, 20).

A postpartum hemorrhage was a comments reason of EOH accordingly for 79 (51.29%) subjects, other authors however noticed rupture of uterus as the commonest indication of EOH. In our study rupture uterus 21 (13.63%), and APH antepartum hemorrhage placenta caused (placenta previa, Abruptio placenta) were almost double (12.98% and 6.49%) respectively.

Among placental origin causes were antepartum hemorrhage including placenta previa and abruptio seen in 10 (16%) cases each. Most of these cases were due to placenta accrete followed pervious cesarean operation section and hypertensive disorder in pregnancy. In rare cases placenta accrete has increased as an emergency indication for hysterectomy (65%) (6).

The broad ligament hematoma was responsible for 14 (11.11%), and uterine infection (p sepsis) were 19 (15.07%) in cases of EOH, anuria and thromboembolism were same (n=6, 4.67%). The uterine infection and sepsis are rare or low ratio in developed countries due to proper sterilization, and following all tools of infection prevention, and effective management of infection with good antibiotic cover (21). In this study, 19 (15.90%) patients expired, disseminated intravascular coagulopathy was seen 15 (11.90%) patients due to placental cause which accrete, and infection. Other subjects also have recorded similar mortality rate 23.78%. The current research demonstrated that ruptured uterus, the primary rationale for peri-partum hysterectomy, has a greater impact on neonatal death than the actual procedure.

CONCLUSION

Due to problems associated to pregnancy and delivery, almost 800 women worldwide pass away every day, or one every two minutes (22). Postpartum hemorrhage is critical and it continues to be a clinically significant source of maternal morbidity and mortality around the globe. Reducing the necessity for an obstetric hysterectomy can be achieved by early intervention, active labor management, and the identification of high-risk variables. They must act quickly and clearly, employing surgical skill to minimize complications. Our findings with emergency Cesarean/obstetrical hysterectomy recommend the proper diagnosis, an experienced obstetrician should perform timely EOH, volume replacement by blood, fresh frozen plasma, and Platelet transfusion, blood bank should be within the premises of obstetrical emergency unit, Timely decision of EOH after PPH management, good program awareness with workshops. Timely identification and diagnosis can be useful in management along with reducing the rate of maternal morbidity and mortality

Conflict of interest:

Authors declare no conflict of interest

Ethical Consideration

The study was approved by local research ethics committee, informed consent was taken from all the participants and their identity was anonymized.

REFERENCES

1. Williams EV, Goranitis I, Oppong R, Perry SJ, Devall A, Martin JT, Mammoliti KM, Beeson L, Sindhu KN, Galadanci H, Alwy Al-beity F. Early detection and treatment of postpartum haemorrhage: a cost-effectiveness analysis of the E-MO-TIVE trial. medRxiv. 2024:2024-01. <https://doi.org/10.1056/NEJMoa2303966>
2. Aoyama K, Pinto R, Ray JG, Hill AD, Scales DC, Lapinsky SE, Hladunewich MA, Seaward GR, Fowler RA. Association of maternal age with severe maternal morbidity and mortality in Canada. JAMA network open. 2019 Aug 2;2(8):e199875-
<https://doi.org/10.1001/jamanetworkopen.2019.9875>.
3. Oliveira MI, da Costa VS, Mer S, Osório J, Martins AP. Thrombocytopenia in pregnancy, a challenge in the intensive care unit (ICU). Revista Española de Anestesiología y Reanimación (English Edition). 2019 Aug 1;66(7):385-9. <https://doi.org/10.1016/j.redare.2019.06.002>
4. Mazhar SB, Batool M, Batool A. Post partum hemorrhage and its predisposing factors In WHO Multi-Country Survey on Maternal and Newborn Health, Pakistan. Journal of The Society of Obstetricians and Gynaecologists of Pakistan. 2018 Sep 6;8(2):104-9. <https://www.jsogp.net/index.php/jsogp/article/view/152>
5. Bell SF, Watkins A, John M, Macgillivray E, Kitchen TL, James D, Scarr C, Bailey CM, Kelly KP, James K, Stevens JL. Incidence of postpartum haemorrhage defined by quantitative blood loss measurement: a national cohort. BMC pregnancy and childbirth. 2020 Dec;20:1-9. <https://doi.org/10.1186/s12884-020-02971-3>
6. Downes KL, Grantz KL, Shenassa ED. Maternal, labor, delivery, and perinatal outcomes associated with placental abruption: a systematic review. American journal of perinatology. 2017 Aug;34(10):0935-57. <https://doi.org/10.1055%2Fs-0037-1599149>
7. Ogu RN, Adinma JI. Aetiology and Management of Obstetric Haemorrhage. Contemporary Obstetrics and Gynecology for Developing Countries. 2021:235-47. https://doi.org/10.1007/978-3-030-75385-6_20
8. Shakur H, Roberts I, Fawole B, Chaudhri R, El-Sheikh M, Akintan A, Qureshi Z, Kidanto H, Vwalika B, Abdulkadir A, Etuk S. Effect of early tranexamic acid administration on mortality, hysterectomy, and other morbidities in women with post-partum haemorrhage (WOMAN): an international, randomised, double-blind, placebo-controlled trial. The Lancet. 2017 May 27;389(10084):2105-16. [http://dx.doi.org/10.1016/S0140-6736\(17\)30638-4](http://dx.doi.org/10.1016/S0140-6736(17)30638-4)

-
9. Adelaja LM, Taiwo OO. Maternal and fetal outcome of obstetric emergencies in a tertiary health institution in South-Western Nigeria. *ISRN Obstetrics and Gynecology*. 2011;2011. <https://doi.org/10.5402%2F2011%2F160932>
 10. Han L, Zhang B, Xu H, Yin H, Pang Y, Zhang X, Zhai Q, Liu X, Wang Y, Zhang C, Xu Y. A new step-wise surgical technique of knapsack-like uterine compression sutures for intractable postpartum hemorrhage in cesarean section. *BMC Pregnancy and Childbirth*. 2024 Jan 2;24(1):9. <https://doi.org/10.1186/s12884-023-06208-x>
 11. Felis S. Postpartum Hemorrhage. *American Journal of Medical and Clinical Research & Reviews*. 2023 Nov 25;2(11):1-28. <https://doi.org/10.58372/2835-6276.1121>
 12. Lee SY, Gan YJ, Goh JP, Ho YH, Lim MY. Laryngeal gout mimicking chondrosarcoma with concurrent longus colli tendinitis. *BMJ Case Reports CP*. 2019 Oct 1;12(10):e231070. <https://doi.org/10.1136%2Fbcr-2019-231070>
 13. Aoyama K, Pinto R, Ray JG, Hill AD, Scales DC, Lapinsky SE, Hladunewich MA, Seaward GR, Fowler RA. Association of maternal age with severe maternal morbidity and mortality in Canada. *JAMA network open*. 2019 Aug 2;2(8):e199875. <https://doi.org/10.1001/jamanetworkopen.2019.9875>
 14. Escobar MF, Nassar AH, Theron G, Barnea ER, Nicholson W, Ramasauskaite D, Lloyd I, Chandrabaran E, Miller S, Burke T, Ossanan G. FIGO recommendations on the management of postpartum hemorrhage 2022. *International Journal of Gynecology & Obstetrics*. 2022 Mar;157:3-50. <https://doi.org/10.1002/ijgo.14116>
 15. Borovac-Pinheiro A, Pacagnella RC, Cecatti JG, Miller S, El Ayadi AM, Souza JP, Durocher J, Blumenthal PD, Winikoff B. Postpartum hemorrhage: new insights for definition and diagnosis. *American journal of obstetrics and gynecology*. 2018 Aug 1;219(2):162-8. <https://doi.org/10.1016/j.ajog.2018.04.013>
 16. Okunade KS, Adejimi AA, Olumodeji AM, Olowe A, Oyediji OA, Ademuyiwa IY, Adelabu H, Toks-Omage E, Okoro AC, Davies N, Adenekan MA. Prenatal anaemia and risk of postpartum haemorrhage: a cohort analysis of data from the Predict-PPH study. *BMC Public Health*. 2024 Apr 12;24(1):1028. <https://doi.org/10.1186/s12889-024-18446-5>
 17. Rigouzzo A, Froissant PA, Louvet N. Changing hemostatic management in post-partum hemorrhage. *American Journal of Hematology*. 2024 Apr;99:S13 <https://doi.org/10.1002/ajh.27264>
 18. Vega-Pérez A, Villarrubia LH, Godio C, Gutiérrez-González A, Feo-Lucas L, Ferriz M, Martínez-Puente N, Alcaín J, Mora A, Sabio G, López-Bravo M. Resident macrophage-dependent immune cell scaffolds drive anti-bacterial defense in the peritoneal cavity. *Immunity*. 2021 Nov 9;54(11):2578-94. <https://doi.org/10.1016/j.immuni.2021.10.007>
 19. Shakur, H., Roberts, I., Fawole, B., Chaudhri, R., El-Sheikh, M., Akintan, A., Qureshi, Z., Kidanto, H., Vwalika, B., Abdulkadir, A. and Etuk, S., 2017. Effect of early tranexamic acid administration on mortality, hysterectomy, and other morbidities in women with post-partum haemorrhage (WOMAN): an international, randomised, double-blind, placebo-controlled trial. *The Lancet*, 389(10084), pp.2105-2116. [http://dx.doi.org/10.1016/S0140-6736\(17\)30638-4](http://dx.doi.org/10.1016/S0140-6736(17)30638-4)
 20. Gulbinienė V, Dumalakiene I, Balciuniene G, Pilypiene I, Narkeviciute I, Novickij V, Vysniauskis G, Ramasauskaite D. Soluble urokinase plasminogen activator receptor in vaginally collected amniotic fluid predicting fetal inflammatory response syndrome: a prospective cohort study. *BMC Pregnancy and Childbirth*. 2024 Jan 10;24(1):54. <https://doi.org/10.1186/s12884-023-06221-0>
 21. Ekanem E, Ngene NC, Moodley J, Konje J. Prevention of surgical site infection and sepsis in pregnant obese women. *Best Practice & Research Clinical Obstetrics & Gynaecology*. 2023 Aug 19;102406. <https://doi.org/10.1016/j.bpobgyn.2023.102406>
 22. Gelebo KG, Mulugeta H, Mossie A, Geremu K, Darma B. Tranexamic acid for the prevention and treatment of postpartum hemorrhage in resource-limited settings: a literature review. *Annals of Medicine and Surgery*. 2024 Jan 1;86(1):353-60. <https://doi.org/10.1097/MS9.0000000000001560>