

Emergency Peripartum Hysterectomy- Burden, Risk Factors and Surgical Outcomes in a Tertiary Care Hospital

Anuvi¹, Ratnesh², Lavanya Kiran¹

¹Department of OBG, Narayana Health City, Bengaluru, Karnataka, India

²Department of Community Medicine, Dumka Medical College, Dumka, Jharkhand, India

Corresponding Author: Ratnesh

ABSTRACT

Introduction: Emergency peripartum hysterectomy (EPH) is a major operation and is inevitably performed in massive haemorrhage during or immediately after caesarean or vaginal deliveries. The objective of our study was to find the burden of EPH with associated risk factors and surgical outcomes

Methodology: A retrospective observational study was conducted in a tertiary care centre in Bengaluru, India from September 2016 to August 2019 which included 10 women who underwent EPH after 22 weeks of pregnancy and within 6 weeks of delivery. Socio demographic and clinical profile, intraoperative findings, additional procedures like uterine artery embolization (UAE) or administration of recombinant factor VIIa (rfVIIa), surgical outcomes and postoperative complications were noted.

Results: The burden of EPH was found to be 2.2/1000 deliveries. Major indication of EPH was morbidly adherent placenta (60%) which was associated with placenta previa in 40% cases. Mean maternal age and gestational age at which EPH was performed was 30±6.3 years and 33.7±4.2 weeks respectively. Subtotal and total hysterectomy were performed in 50% cases each. Main intra-operative complication was haemorrhage. Surgical relaparotomy was done in 30% cases. Additional procedure of UAE and administration of rfVIIa was done in 20% and 10% patients respectively. Mean duration of ICU stay was 3.50±3.8 days. Mortality was seen in 2 patients.

Conclusion: Morbidly adherent placenta was the major cause for EPH attributed to high rate

of primary caesarean deliveries. Early diagnostic facility can help us to detect these beforehand and plan the procedure electively so that related morbidity and mortality is reduced.

Keywords: Emergency peripartum hysterectomy, Morbidly adherent placenta, Placenta previa, Postpartum haemorrhage.

INTRODUCTION

Emergency peripartum hysterectomy (EPH) is a lifesaving procedure done in cases of uncontrollable postpartum haemorrhage either simultaneously with vaginal/caesarean delivery or anytime between the birth of the baby and discharge from hospital for the same.¹

The incidence of EPH ranges from 0.24 to 8.9 per 1000 deliveries depending on the quality of antenatal care, early diagnostic facility, expertise of the obstetrician and availability of high end resources such as uterine artery embolization at the respective health centres.² The most common cause of EPH are uterine rupture and uterine atony.³

The main complications of EPH comprise of blood and blood product transfusions, chances of surgical re-exploration because of continuous ooze and bleeding, febrile morbidity, disseminated intravascular coagulopathy, ureteral injury, postoperative depression, prolonged ICU stay or maternal death⁴.

The objective of our study is to find the burden of EPH with associated risk factors and surgical outcomes.

MATERIALS & METHODS

A retrospective observational study was conducted in a multispecialty tertiary care, higher referral hospital for peripheral centres in Bengaluru, South India from 1st September 2016 to 31st August 2019.

Purposive sampling was done to select the study participants. Total 10 study participants who required EPH were included in this study.

Our study included all women who underwent EPH after 22 weeks of gestational age and within 6 weeks of delivery over the study period of 3 years. Verbal consent was taken from the patients. Both booked and un-booked cases were included.

Patients who were not willing to give consent and who did not undergo EPH after 22 weeks of gestational age and within 6 weeks of delivery were excluded from the study.

Verbal consent was taken from the study subjects who were then interviewed over telephone. Data was collected from hospital record using a pre designed questionnaire which had variables like socio demographic profile of the subjects, parity, previous caesarean section, intraoperative blood loss, need for transfusion, mode of delivery, operating time, total or subtotal hysterectomy, additional procedures like uterine artery embolization or administration of recombinant factor VIIa, associated risk factors and indication for EPH, short term surgical outcomes such as duration of ICU and hospital stay, need for blood transfusion and postoperative complications were noted.

The data collected was tabulated on Microsoft Excel sheet and analysed using SPSS Version 25. The categorical variables were collated in frequency and percent and the continuous variables were calculated as mean \pm standard deviation.

RESULT

There were total 4489 deliveries from September 2016 to August 2019. A

total of 10 EPH were performed with its burden being 2.2 per 1000 deliveries.

Table 1 shows that 7 patients were multiparous (70%). Maternal age was between 22-43 years with mean being 30 ± 6.3 years. The mean gestational age at which EPH was performed was 33.7 ± 4.2 weeks. There was 1 (10%) case performed between 22-28 weeks, 6 (60%) between 28-36 weeks and 3 (30%) cases performed for more than 36 weeks.

As per Table 2 the most common indication of EPH was morbidly adherent placenta present in 6 (60%) cases. Morbidly adherent placenta was associated with placenta previa in 4 (40%) cases. There was also one case of placenta previa with vasa previa. There was one case of rupture uterus following assisted breech vaginal delivery after previous caesarean section. All the 6 (100%) patients with adherent placenta had history of previous caesarean. 4 had previous one caesarean section and 2 had previous two caesarean section. EPH was done following caesarean delivery in 8 (80%) and following vaginal birth after previous caesarean section in 2 (20%) of the patients. Indications for caesarean deliveries were fetal distress in 2 (20%), antepartum haemorrhage due to placenta previa in 3 (30%) cases, twin pregnancy with preterm labour with first twin in breech presentation in 1(10%) case, cardiac decompensation in mother due to severe pulmonary hypertension and Eisenmenger syndrome in 1 (10%) cases and antenatal diagnosis of morbidly adherent placenta in 1(10%) case. The mean birth weight of the new-born was 2.16 ± 0.8 kg. Gestational diabetes mellitus was seen in 2 cases out of which one was associated with polyhydramnios. Total 7 (70%) cases had preterm birth. There was 1 still birth at the gestational age of 24 weeks delivered by vaginal birth after previous caesarean section.

Subtotal hysterectomy was performed in 5 (50%) and total hysterectomy in 5 (50%) of the patients. Hysterectomy was done immediately

following delivery in 7 (70 %) and within 24 hours of delivery in 3 (30%) cases.

Most common intra-operative complication in our study was haemorrhage with all patients requiring transfusion of blood and blood products as shown in Table 3. A mean of 6.5 units of packed red blood cells, 5.3 units of fresh frozen plasma, 3.5 unit of platelets and 4 unit of cryoprecipitate were transfused. Intra-operative injury to the urinary bladder was seen in 1(10%) of the patients. There were no other intra-operative complications. Surgical relaparotomy was done in 3 (30%) cases in which 2nd time opening of abdomen for hysterectomy was done for 2 cases. Disseminated intravascular coagulopathy (DIC) was seen in 1 patient who presented at term with dengue resulting in thrombocytopenia and underwent repeat caesarean section for fetal distress in critical phase of dengue for whom uterine artery

embolization and administration of recombinant factor VIIa was done in the postoperative period. Additional procedure of uterine artery embolization was done in total 2 (20%) patients post operatively. Mean duration of ICU stay was 3.50±3.8 days (range 1-14 days) with need for tracheostomy in 2 patients. Death was reported in total 2 (20%) study subjects. The cause of death in one patient was cardiac decompensation postoperatively due to severe pulmonary hypertension, Eisenmenger's syndrome with ventricular septal defect resulting in refractory cardiogenic shock. 2nd patient had immediate desaturation following extubation post surgery resulting in metabolic acidosis and cardiac arrest. Total duration of hospital stay was between 1-24 days with mean being 9.8±7.4 days.

Table 1- Sociodemographic profile and clinical characteristics of the study participants

N=10		
Age in years		30±6.3 (22-43)
Parity	Primipara	3(30%)
	Multiparous	7(70%)
History of previous caesarean section	previous 1 caesarean section	5(50%)
	previous 2 caesarean section	2(20%)
Gestational Age in weeks		33.7±4.2 (24-38)
Mode of delivery	caesarean section	8(80%)
	Vaginal delivery	0
	VBAC	2(20%)
Previous uterine curettage		4(40%)
Preoperative haemoglobin (gm%)		12.77±2.11 (11-18.10)
Postoperative haemoglobin (gm%)		8.35±2.57(6-15.1)
Intraoperative Blood loss (ml)		3355±1051.5(1500-5000)
Operating time(minutes)		270±114.8

Table 2- Indications for EPH

	N (Percentage)
Atonic PPH	3 (30%)
Placenta previa	5 (50%)
Morbidly adherent placenta	6 (60%)
Rupture uterus	1(10%)

Table 3- Postoperative complications

	N (Percentage)
DIC	1(10%)
Bladder Injury	1(10%)
Postoperative fever	3(30%)
Postoperative depression	3(30%)
Surgical re-exploration	3(30%)

DISCUSSION

Major cause of death within 6 hours of delivery remains postpartum haemorrhage (PPH).⁵ In cases of intractable PPH not controlled by uterotonics and

surgical measures, EPH proves to be an important tool for saving the patient's life since time immemorial.

In this study, there were total 4489 deliveries from September 2016 to August 2019. A total of 10 EPH were performed with its burden being 2.2 per 1000 deliveries. This was similar to study conducted by Korejo R et al⁶ in Pakistan where the incidence was 2.7 per 1000 deliveries. In another study conducted in south India by Hoblidar S et al⁷ and Tahmina S et al⁸, the incidence was found to be 0.7 per thousand deliveries. However the incidence varies from 0.31 per 1000 deliveries in a study conducted by Nohira T

et al³ in Japan to 5.4 per 1000 deliveries in a study conducted by Sharma R et al⁹ in northern India. The reason for high incidence of EPH in this study can be attributed to the tertiary care multispeciality status of our centre with it being higher referral centre for all the nearby peripheral hospitals.

There has been a change in the trend of major risk factors responsible for EPH over the last 30 years with uterine atony being the leading cause in the 1980s to abnormal placentation being the leading cause in recent years.² This can be explained by the better and widespread use of uterotonics and efficient active management of third stage of labour leading to control of atonic PPH. Also the recent increase in the rate of primary caesarean section has led to increased incidence of morbidly adherent placenta and placenta previa.¹⁰

In this study the most common indication of EPH was morbidly adherent placenta present in 6 (60%) cases. Atonic PPH was present in 3 (30%) cases and rupture uterus was present in 1(10%) case. This was similar to findings in study conducted by Sharma B et al¹⁰ where the main indication of peripartum hysterectomies was placenta accreta (60%) followed by atonic PPH (27.5%), and uterine rupture (7.5%). However in study conducted by Hoblidar S et al⁷ and Tahmina S et al⁸, atonic PPH was the main indicator for EPH contributing to 38% and 58% of the cases respectively.

In this study 7 patients were multiparous (70%) and remaining 30% were primipara which was similar to finding in study conducted by Sharma B et al¹⁰ where 77.5% of the study subjects were multigravida. In the present study maternal age was between 22-43 years with mean being 30±6.3 years. This was supported by findings of study conducted by Nohira T et al³ in Japan where the mean age of the study subjects was 31.15 ± 1.25 years with range being in between 23-42 years. Hence increased maternal age is a risk factor for

EPH as also observed in study conducted by Whiteman et al¹¹.

In this study the mean gestational age at which EPH was performed was 33.7±4.2 weeks. There was 1 (10%) case performed between 22-28 weeks, 6 (60%) between 28-36weeks and 3 (30%) cases performed for more than 36 weeks. Sharma B et al¹⁰ found in their study that 75% patients had more than 34 weeks of gestation at the time of surgery, 17.5% were between 28 and 34 weeks, and 7.5% were less than 28 weeks.

In present study 80% EPH was done following caesarean section and 20% was done following vaginal delivery after previous caesarean section. Also 50% cases had previous 1 caesarean section and 20% had previous two caesarean section. This was supported by study conducted by Bodelon et al¹ where the risk of EPH was almost twice for vaginal delivery after a prior caesarean as compared to vaginal delivery without prior caesarean section and for caesarean deliveries, the risk increased as the number of caesarean births increased, with the risk of EPH in primary caesarean delivery being more than 4 times the risk in vaginal delivery and approximately 8 times for repeat caesarean. Whiteman et al¹¹ also observed that caesarean delivery is associated with higher risk of EPH due to labour complications and also as surgically, uterus is more easily removable .

The major intraoperative complication was massive haemorrhage with mean intraoperative blood loss of 3355±1051.5ml similar to study conducted by Nohira T et al³ where the mean estimated blood loss was 2,908 ± 366.0 ml. Additional procedure of UAE was done in 20% cases and administration of recombinant factor VIIa having strong haemostatic effect was done in 10% cases which increased the patient survival. Nohira t et al³ also found these methods to be effective in cases of uterine atony. 50% patients underwent subtotal hysterectomy and 50% underwent total hysterectomy.

Total hysterectomy was performed in cases with placenta previa with or without placenta accrete/percreta to control the bleeding from lower uterine segment and ligate the cervical branch of uterine artery. In study conducted by Hoblidar S et al⁷, subtotal hysterectomy was done in 61.9% and total hysterectomy in 38% patients. Patients who underwent subtotal hysterectomy were advised regular cervical cancer screening for the risk of developing cervical stump carcinoma.

In present study postoperative fever was observed in 30% cases, postoperative depression in 30% cases and surgical re-exploration was done in 10% cases similar to findings in study conducted by Nohira T et al³ where postoperative febrile morbidity was seen in 38.5% cases, postoperative depression in 15.4 cases and surgical exploration in 77% cases. DIC developed in 1 (10%) case postoperatively. There were 2 maternal deaths resulting in 20% maternal mortality in the study subjects.

CONCLUSION

From this study, we concluded that morbidly adherent placenta is the leading risk factor for EPH which can be attributed to increased rate of primary caesarean section these days. Improved early diagnostic facility can help us to detect such cases beforehand and plan the procedure electively so that related morbidity and mortality can be reduced. Also, with the advent of newer procedures like uterine artery embolization and administration of recombinant factor VIIa can reduce the intraoperative blood loss and incidence of catastrophic complication of DIC.

REFERENCES

1. Bodelon C, Bernabe-Ortiz A, Schiff MA, Reed SD. Factors associated with peripartum hysterectomy. *Obstet Gynecol.* 2009;114(1):115–23.
2. Lovina SM, Machado. Emergency peripartum hysterectomy: incidence,

indications, risk factors and outcome. *North American Journal of Medical Sciences.* 2011;3(8):358-61.

3. Nohira T, Onodera T, Isaka K. Emergency postpartum hysterectomy: incidence, trends, indications, and complications. *Hypertension Research in Pregnancy* 2014; 2: 88–93
4. Kwee A, Bots ML, Visser GH, Bruinse HW. Emergency peripartum hysterectomy: A prospective study in The Netherlands. *Eur J Obstet Gynecol Reprod Biol* 2006; 124:187–192.
5. Toppo M, Pal DK, Gour D, Melwani V, Khan A, Sethia S. Addressing maternal mortality in selected districts of Madhya Pradesh, India- A human rights based approach. *Indian journal of community medicine.* 2019;44(2):138-141
6. Korejo R, Nasir A, Yasmin H, Bhutta S. Emergency obstetric hysterectomy. *JPMA.* 2012;62:1322.
7. Hoblidar S et al. *Int J Reprod Contracept Obstet Gynecol.* 2016 Sept;5(9):3112-3115
8. Tahmina S, Daniel M, Gunasegaran P. Emergency Peripartum Hysterectomy: A 14-Year Experience at a Tertiary Care Centre in India. *Journal of clinical diagnosis and research.* 2017 Sep; 11(9): QC08–QC11.
9. Sharma R, Shaheen Pathak J. Peripartum hysterectomy a review of 70 cases. *South Asian Fed Obstet Gynecol.* 2009;1(2):19–21.
10. Sharma B, Sikka P, Jain V, Jain K, Bagga R, Suri V. Peripartum hysterectomy in a tertiary care hospital: Epidemiology and outcomes. *Journal of Anaesthesiology Clinical Pharmacology.* 2017 Jul-Sep; 33(3): 324–328.
11. Whiteman MK, Kuklina E, Hillis SD, Jamieson DJ, Meikle SF, Posner SF, et al. Incidence and determinants of peripartum hysterectomy. *Obstet Gynecol.* 2006; 108(6):1486-92.

How to cite this article: Anuvi, Ratnesh, Kiran L. Emergency peripartum hysterectomy-burden, risk factors and surgical outcomes in a tertiary care hospital. *International Journal of Research and Review.* 2020; 7(3): 206-210.
