

Emergency Peripartum Hysterectomy – Incidence, Indications, Fetomaternal Complications: A Retrospective Observational Study From A Tertiary Care Teaching Hospital

Bunty Dinani¹, Seema Pundir²

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¹Senior Resident ²Specialist, Department of Obstetrics and Gynaecology, Baba Saheb Ambedkar Hospital, Rohini, New Delhi, Delhi 110085, India.

Corresponding Author: Bunty Dinani, Senior Resident, Department of Obstetrics and Gynaecology, Baba Saheb Ambedkar Hospital, Rohini, New Delhi, Delhi 110085, India.

E-mail: seemapundir2014@gmail.com

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Abstract

Introduction: To determine the incidence, indications, risk factors and fetomaternal complications associated with emergency peripartum hysterectomy.

Material and method: This is a retrospective case series where hospital file record of patients who underwent EPH during January 2016 to December 2018 in the department of obstetrics and gynecology, BSAH, New Delhi after ethical approval were thoroughly examined. Data regarding incidence, indications, risk factors and fetomaternal complications of EPH were obtained.

Results: During the study period, there were total of 39 emergency peripartum hysterectomies, with the incidence of 1.6 per 1000 deliveries. The various indications for hysterectomy were uterine atony (33%) followed by placenta previa (18%), adherent placenta (18%) and uterine rupture (10%). The risk factors associated were multiparity (74%), previous cesarean section (25%) and obstructed labor (20%). Common postoperative complications were fever, wound infection and DIC. The maternal mortality rate was 13% and perinatal mortality rate was 23%.

Conclusion: Emergency peripartum hysterectomy is a potentially lifesaving procedure associated with significant maternal morbidity and mortality. Uterine atony and abnormal placenta were the common indication for emergency peripartum hysterectomy.

Previous scar, multiparity and abnormal placentation were the significant risk factors.

Keywords: Peripartum hysterectomy; Maternal morbidity and mortality; Fetomaternal complications.

Introduction

Obstetric hemorrhage is one of the primary cause of maternal mortality, morbidity and a challenging complication in developing countries. In addition, obstetric hemorrhage is a major health problem and contributes to 25% of direct maternal deaths.¹ Rapid and equitable access to skilled birth attendance and basic and comprehensive emergency obstetric care including blood transfusions and or EPH is a key principle underlying strategies to reduce maternal mortality.

Emergency peripartum hysterectomy (EPH) involves removal of uterus, performed after 20 weeks of gestation and within twenty-four hours of birth. It is a life-saving measure in cases of intractable obstetric hemorrhage not responding to the conservative treatments.² It's still one of the most challenging procedure is modern obstetrics. Despite advances in medical and surgical fields, postpartum hemorrhage is still a leading cause of maternal morbidity and mortality. Earlier

uterine atony and rupture were the most common indications for EPH and recent studies show that other indications include abnormal placentation with placenta accreta, leiomyomas, coagulopathy or laceration of a uterine vessel not treatable by more conservative measures.

In modern obstetrics, the overall incidences of EPH is 0.05%, but incidence differ in different parts of the world depending on modern obstetric services, standards and awareness of antenatal care and the effectiveness of family planning activities of a given community.³ In developed countries, the incidence is approximately one in 2000 deliveries.⁴ Poverty, illiteracy, poor transportation facilities, erroneous cultural and religious beliefs, high incidence of unbooked pregnancies and poorly supervised deliveries are the factors leading to high incidence of EPH in developing countries.⁵

Multiple pregnancies pose a significantly increased risk of emergency peripartum hysterectomy compared to singleton pregnancies as they are associated with higher rates of premature labor requiring tocolysis and uterine distention with greater total fetal weight at delivery. All these predispose to uterine atony that can lead to peripartum hysterectomy. Assisted reproductive technology is associated with multiple pregnancies, so are related to high risk of EPH.⁶

EPH is commonly associated with severe blood loss, risk of transfusion, intraoperative complications like urinary tract injury and significant postoperative morbidity and mortality. EPH is associated with higher rates of maternal mortality (range 0 to 30%), more in regions with limited medical and hospital resource and other associated risk factors.⁷

The objectives of this study are to determine the incidence, indications, risk factors, and fetomaternal complications of EPH in our institution over last two years.

Materials and Methods

The present retrospective study was carried out in the department of Obstetrics and Gynaecology at Baba Saheb Ambedkar Hospital and Medical College, which is one of the main hospitals in north Delhi. Study period was from Jan 2016 to Dec 2018. All patients who delivered singleton infant or twins at hospital, booked or unbooked who underwent hysterectomy in postpartum period were included in this study. Maternal characteristics such as age, parity, residence and any previous cesarean birth were recorded. Detailed history was taken, the indication for surgery, type of hysterectomy, intra- and postoperative complications, any need for blood transfusion and pregnancy outcome were recorded on a proforma. The patient's relatives were counseled regarding need for hysterectomy and their high-risk consent taken. Data thus collected was subjected to appropriate statistical analysis.

Results

There were a total of 23,876 deliveries at our institute of which only 45% deliveries were booked. Total number of vaginal and caesarean deliveries were 15,520 and 8,356 respectively. Life saving EPH was performed in 39 cases and incidence of EPH was 1.6% (Table 1).

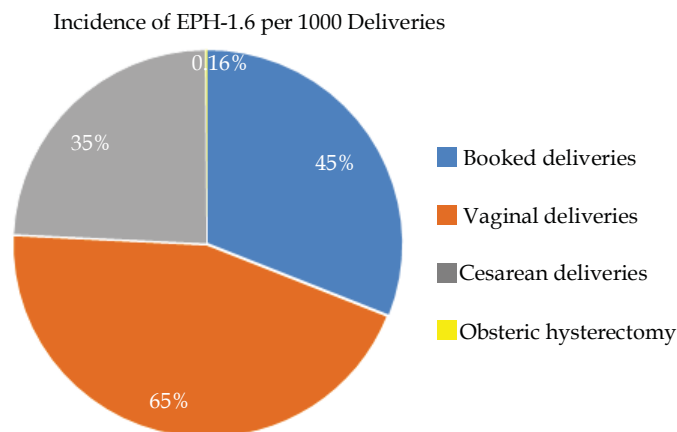


Fig. 1: Incidence of EPH.

Table 1: Patient data of obstetric interventions in our hospital during the study period

Variables	Numbers
Total deliveries	23,876
Booked deliveries	10,774
Cesarean deliveries	8,356
Vaginal deliveries	15,520
Obstetric hysterectomy	39
Incidence	1.6 per 1000 deliveries

Patient case sheets, operative notes, histology reports were used to get the patient details, cause of hysterectomy and postoperative outcome. Majority of the women belonged to the age group between

21 and 35 years. There were no patients below the age of 20 and above 36 years. One-third cases of EPH were performed in primipara (25%) and rest two-thirds in multipara (75%) women (Table 2).

Table 2: Parity distribution of EPH patients

Age	Primipara	Multipara	Total (%)
< 20	0	0	0.0
21-25	5	8	33.3
26-30	4	10	35.8
31-35	1	7	20.5
>36	0	4	10.2
Total	25.6%	74.3%	100.0

The indications of EPH were adherent placenta (18%), placenta previa (18%), uterine atony (33%), Traumatic PPH (10%), rupture uterus (8%), inversion of uterus (5%) and sepsis (8%). All the

cases of placenta previa who underwent EPH were central placenta previa. Uterine atonicity remained the major cause in spite of the rising incidence of abnormal placentation (Table 3).

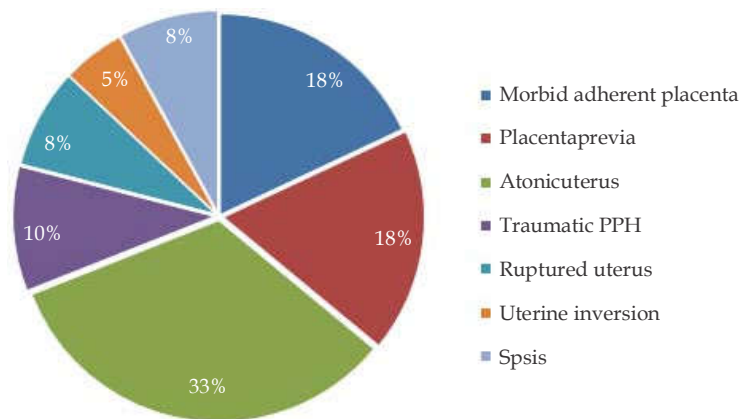


Fig. 2: Indications of EPH in our study.

Table 3: Indications of EPH in our study

Indications	No. of cases	Percentage (%)
Morbid adherant placenta (accrete, increta, percreta)	7	17.9
Placenta preavia	7	17.9
Atonic uterus	13	33.0
Traumatic PPH	4	10.2
Ruptured uterus	3	7.6
Uterine inversion	2	5.1
Sepsis	3	7.6

On analysis of the risk factors of Emergency peripartum hysterectomy multiparity (75%) and history of previous cesarean section (25%) were

a major risk factors. Other indications included obstructed labor (20%), placental factors (20%) and abruptio placenta (10%) (Table 4).

Table 4: Risk factors for emergency peripartum hysterectomy

Risk factors	Number of patients	Percentage (%)
Multiparity	29	74.3
Obstructed labor	8	20.5
Previous cesarean	10	25.6
Placental factors	8	20.5
Abruptio placenta	4	10.2

Total hysterectomy was performed in around 95% cases. In 5% of the cases with serious hemodynamic

instability, subtotal hysterectomy was performed (Table 5).

Table 5: Type of surgical intervention done in EPH patients

Type of surgery	No. of patients	Percentage (%)
Total hysterectomy	37	94.8
Subtotal hysterectomy	2	5.2

On analysis we found that 82% of the patients had postoperative pyrexia and all the patients were given blood transfusion. Around 30% patient with DIC and hypotension were shifted to ICU in view of urgent need of critical care management. In our

study, three cases had massive abdominal collection and required relaparotomy. Internal artery ligation was required in 02 (5%) cases. In spite of being a life saving procedure, 13% maternal mortality was documented (Table 6).

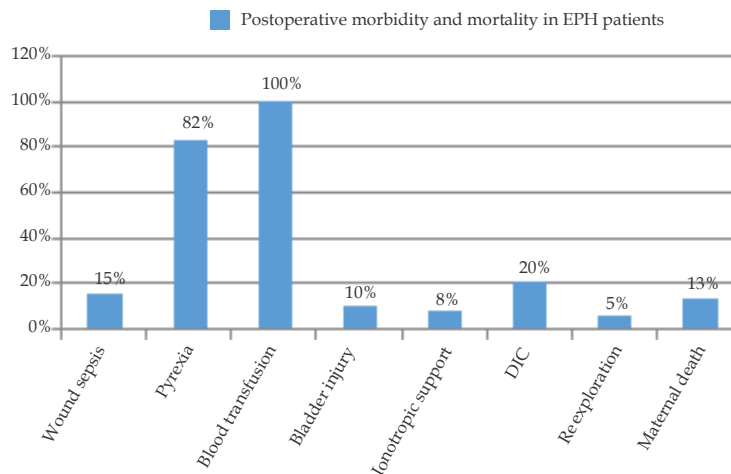


Fig. 3: Postoperative morbidity and mortality in EPH patients

Table 6: Postoperative morbidity and mortality in EPH patients

Variables	No. of patients	Percentage (%)
Wound sepsis	6	15.3
Pyrexia	32	82.0
Blood transfusion	39	100.0
Inotropic support	4	10.2
Reexploration	3	7.6
DIC	8	20.5
Bladder injury	2	5.1
Maternal death	5	13

Out of total 39 deliveries, there were 30 (76.9%) live born babies, out of which 15 babies (38.4%) needed NICU admission. Seven babies (17.9%)

were stillborn and total perinatal mortality rate was 23% (Table 7).

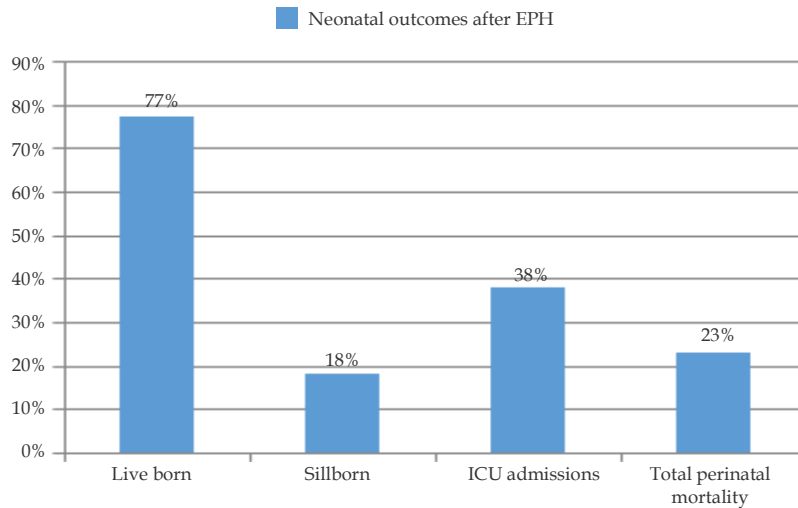


Fig. 4: Neonatal outcomes after EPH.

Table 7: Neonatal outcomes after EPH

Variables	No. of patients (%)
Live born	77
Stillborn	18
NICU admissions	38
Total perinatal mortality	23

Discussion

The incidence of EPH in our study was 1.6%. This rate is high when compared to the low incidence in developed countries (0.08% in Columbia, 0.06% in USA, 0.22% in Nigeria). Other study from India by Chawla et al.⁸ showed a rate of 0.08%. Studies by Ranjani Patil et al.⁹ showed an incidence of 0.14%. The higher rate of EPH in our study can be attributed to the fact that our center is a tertiary referral hospital receiving many unbooked cases from rural areas in a very deteriorated and critical condition. A high association of multiparity (75%) with EPH was observed in our study similar to Chawla et al. 4 (82%), Ohonsi et al. (60%) (10) and Ranjani Patil et al.⁹ (82%). Common indications in this study are atonic PPH followed by morbidly adherent placenta (13%) and placenta previa (18%). Similar findings were reported by Kant et al.¹¹

Uterine atony as a cause of EPH is decreasing worldwide due to use of uterotonic and haemostatic drugs, surgical interventions like internal iliac artery ligation. Increased rate of cesarean section has lead

to increased incidence of abnormal placentation, so leading to high rates of EPH.¹²

In maternal morbidities, pyrexia was the commonest in the present study. Sepsis screen was done in all and appropriate antibiotics added. Pyrexia could have also been due to massive blood transfusions as all the patients needed blood transfusion. Similar results were reported in the study by Ranjani Patil et al.⁹ DIC was common in this review at a rate of 20% and this warrants vital role of prompt availability of blood products. These findings were comparable with the studies reported by Smith et al.¹³ and Mousa et al.¹⁴

Reexploration was done in 4 cases for persistent postoperative bleeding. Mortality rates of 4% were cited by Kwee et al.¹⁵ and much higher rates of 20% were reported by Y Mesbah.¹⁶ Other studies by Chawla et al.⁸ reported 18% and Ohonsi et al.¹⁰ 13.3%. The maternal mortality rate of 13% in this study may have been largely due to the moribund cases which presented late to the hospital leaving no time for maternal salvage. Prolonged labor, intrauterine manipulation and sepsis probably

accounted for these complications. These could have been prevented by early referral of these cases to well-equipped centers which can treat emergency obstetric cases promptly and efficiently. Perinatal mortality was 23%, as compared to 30% in a study by Singla et al.¹⁷ and 85% in a study by Singh et al.¹⁸

Conclusion

Obstetric hysterectomy is a life-saving procedure but decision should be prompt and managed by an experienced surgeon in a center with proper facilities available. Obstetricians should be well trained to perform this procedure. High mortality rate despite the proper surgical procedure can be prevented by good maternal antenatal care, active management of labor, early recognition of complications, timely referral, and easy availability of transport and blood transfusion facilities. Emphasis should be given to community education ensuring more institutional deliveries. EPH in our study was mainly contributed by uterine atony and abnormal placentation. Severe life-threatening hemorrhage requires hysterectomy though it is associated with high maternal morbidity and loss of future fertility.

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