



Emergency peripartum Hysterectomy: A Retrospective Study from a Teaching Hospital in Eastern India over Five Years

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Abstract

Background: *Emergency peripartum hysterectomy (EPH), although rare in modern obstetrics, remains a lifesaving procedure in cases of severe haemorrhage.*

Objective: *To review the cases of emergency peripartum hysterectomy regarding their incidence, risk factors, indications, and complications and their results were carefully analyzed.*

Materials and Methods: *A retrospective study of cases of emergency peripartum hysterectomy which were performed in the period between January 2013 and December 2016 at ICARE Institute of Medical Sciences, Haldia and Burdwan Medical College & Hospital in West Bengal was done. Clinical data extracted and closely interpreted.*

Results: *In the study there were 40,093 deliveries and 81 cases of postpartum hysterectomies. The overall incidence was 0.097%. Caesarean hysterectomy was performed in 51 cases (0.373%) and postpartum hysterectomy was performed in 30 cases (0.113%). Total hysterectomy was performed in 23 cases (28.4%) and subtotal hysterectomy was performed in 58 cases (71.6%). The main indications for hysterectomy were uncontrolled postpartum haemorrhage (44.4%), ruptured uterus (33.3%) and morbidity adherent placenta (24.7%). There were 9 maternal deaths and 32 cases of stillbirths.*

Conclusion: *Peripartum hysterectomy is a major life saving operation. Although PPH is the main indication, it is significantly associated with post caesarean cases. Obstetricians should identify patients at risk and anticipate the procedure and complications, as early interventions and proper management facilitate optimal outcome.*

Keywords: *Peripartum hysterectomy, postpartum haemorrhage, ruptured uterus, morbidity adherent placenta.*

Introduction

Emergency obstetric hysterectomy (EOH) is defined as extirpation of the uterus either at the time of cesarean section or following vaginal delivery, or within the puerperium period. It is usually performed in the face of unrelenting and life-threatening obstetric hemorrhage.¹

Emergency peripartum hysterectomy (EPH) has been described as the most dramatic operation in modern obstetric practice and a marker of severe maternal morbidity and near miss mortality.² The procedure is usually performed when all conservative measures have failed to achieve haemostasis during life threatening obstetric haemorrhage.³ The most common indication for emergency procedures is severe uterine haemorrhage that cannot be controlled by conservative measures. Such haemorrhage may be due to abnormal placentation (e.g.placenta accrete).uterine atony, uterine rupture, leiomyoms, cogulopathy, or laceration of a uterine vessel not treatable by conservative measures. The relative frequency of these conditions varies among series and is dependent upon the patient population and practice patterns.⁴ Despite advances in medical and surgical fields, post partum haemorrhage continues to be the leading cause of maternal morbidity and mortality.

Although emergency peripartum hysterectomy is usually performed to save the life of the mother, it can be associated with maternal mortality and also morbidity due to uncontrollable haemorrhage, delay in intervention, risks from blood transfusions, infection and disseminated intravascular coagulation particularly in the developing countries.³ EPH remains a life saving procedure in the management of intractable haemorrhage unresponsive to conservative treatment. Because of the increasing caesarean section (CS) rate worldwide and the concomitant rise in placenta previa and placenta accrete, the incidence of emergency PH is rising. Against this background we aimed to determine the incidence, indications, types of operation, complications and outcome of emergency PH.

Materials and Methods

Because of emergent nature and rarity of PH, a hospital record review was the only feasible research design. A retrospective study of cases of emergency PH which were performed in the period between January 2013 and December 2016 at ICARE Institute of Medical Sciences, Haldia and Burdwan Medical College & Hospital in West Bengal was done. Individual patient records were scrutinized and data such as patient demographic details, previous obstetric history, details of the index pregnancy and birth, indications for PH, outcome of the hysterectomy, postoperative complications, blood transfusions, length of hospital stay, histopathology, maternal death and stillbirths were recorded onto proformas.

Data were entered into Microsoft excel database and statistical analysis was done using Graphpad Prism online. Categorical variables were compared between groups by Fisher's Exact Test; Numerical variables were compared between groups by Student's upgraded t-test. All analyses were 2-tailed and p-value <0.05 was considered to be statistically significant.

Results

Eighty one mothers required emergency PH in 40,093 deliveries over the last 5 years, resulting in an emergency hysterectomy rate of 0.097% (95% CI 0.080% to 0.11%) [Table 4]. Eight additional cases were noted, but the records were incomplete, and these cases were not included in the study. Thirty of 26439 mothers who delivered vaginally (0.113%) and 51 of 13654 mothers who delivered by CS (0.373%) required hysterectomies. The mean age of 81 mothers was 28.2 years (range 21-37). Fifty three percent were in the 26-30 years and 22.2% of the 31-35 years of age group. The mean gestational age at delivery was 37.8 weeks (range 32-41). Only six mothers were primigravida; 9 mothers were multigravida with a history of abortions; 31 mothers were primigravida; 30 mothers were multipara; and 5 mothers were grand multiparas. About 34 mothers had a history of CS previously [Table 1].

Postpartum haemorrhage (PPH) (44.4%), ruptured uterus (RU) (32%) and morbidity adherent placenta (MAP) (24.7%) were the three major indications for PH. Uncontrollable primary PPH was the main cause for hysterectomy in almost all the cases [Table 2]. Previous CS (41.97%) and antepartum haemorrhage (25.92%) were the significant high risk factors.

Subtotal hysterectomy was performed in 58 cases (71.6%) and in the remaining 23 cases, total hysterectomy (28.4%) was done. Internal iliac artery ligation was done in 14 cases. Repair of the bladder wall injury was required in 6 cases. All the mothers required blood transfusions; 24 needed four units, 41 needed three and 16 needed two. About 36 mothers received fresh frozen plasma. About 18.5% patients had no post operative complications. The common complications were febrile illness (35.8%), wound infection (29.6%) and paralytic ileus (17.3%). Others were burst abdomen (8.6%), renal failure (3.7%), septicaemia (6.2%) and VVF (2.5%). It was noted that those mothers who had complications usually had a combination of them, for example fever, wound infection and burst abdomen.

On an average, the hospital stay was of 11.6 days; mothers, who developed VVF, burst abdomen and renal failure, had a long hospital stay. There were 9 maternal deaths giving a maternal mortality 11.1% (95% CI 4.27% to 17.95%). These were due to DIC following acute blood loss in four, hypovolemic shock in three, septicaemia in one and renal failure in one. There were 32 still births (39.51%; 95% CI 28.86% to 50.15%).

Regarding histopathology, data in the pathology departmental register revealed that the presence of morbidity adherent placenta was found in 26 specimens, fibroid (with diameters ranging from 2 to 5 cm) in four specimens, and others were histologically normal.

Table 1: General characteristics of peripartum hysterectomy cases

Characteristics	Mean	Standard Deviation
Age (yrs)	28.2	3.1
Gravidity (n)	2.8	1.13
Parity (n)	1.74	0.84
Gestational age (weeks)	37.9	1.59
Fetal weight (kg)	2.79	0.44
Duration of hospital stay (days)	11.6	3.8
Blood transfusion (units)	3	0.82
Maternal death (n)	9	-

Table 2: Indications of peripartum hysterectomy cases (n=81)

Indications	No.	Percentage
Postpartum haemorrhage	36	44.4%
Atonic postpartum hemorrhage	17	
Placenta previa	9	
Multiple pregnancy	4	
Inversion of uterus	3	
Exact cause not specified	3	
Ruptured Uterus	27	33.3%
Rupture of caesarean section	16	
Grand multiparity	3	
Obstructed labor	2	
Misoprostol abuse	2	
Extension during caesarean	1	
Exact cause not specified	3	
Morbidity adherent placenta	20	
Previous caesarean section	14	
Placenta previa	5	
Exact cause not specified	1	

Table 3: Comparison of post caesarean and non post caesarean cases of peripartum hysterectomy

Characteristics	Non Post Caesarean (N=47)	Post Caesarean (N=34)	P value
Age (yrs, mean ± SD)	27.6±3.4	27.9±3.33	0.458
Gestational age (weeks, mean ±SD)	38.3±1.4	37.1±1.9	0.003
Fetal weight (kg, mean ± SD)	2.97±0.39	2.85±0.47	0.207
Indications (%)			
Postpartum haemorrhage	31 (66%)	4 (11.8%)	<0.001
Uterine rupture	10 (21.3%)	16 (47%)	0.017
Morbid adherent placenta	6 (12.7%)	12 (35.2%)	0.029
Total transfusion (units, mean ± SD)	3.1±0.78	3 ±0.61	0.536
Type of hysterectomy (n, %)			
Total	6 (12.77%)	17 (50%)	<0.001
Subtotal	41 (87.23%)	17 (50%)	
Hospital stays (days, mean ± SD)	10.9 ± 3.3	12.3 ± 4	0.089
Maternal death (n, %)	4 (8.5%)	5 (14.7%)	0.481
Fetal death (n, %)	14 (29.7%)	18 (53%)	0.041

Table 4: Comparison of studies of peripartum hysterectomy

Study	Incidence (%)	Indications (%)	Maternal mortality (%)
Kant Anita et al (2005)	0.26	PPH (41.4); RU (36.5); MAP (12.2)	9.7
Pati S et al (1998)	0.146	RU (64.4)	16.4
Kore et al (2001)	0.18	RU (38.2)	11.1
Sahasrabhojane Mrinalini et al (2008)	0.35	RU (50)	10
Karen M Flood et al (2009)	0.04	MAP (46), PPH (30)	-
Wai Young et al (2006)	0.028	PPH (77)	11.1
Seleuk O'Zden et al (2004)	0.025	PPH (62.7)	8
Praneshwari Devi et al (2004)	0.0779	MAP (26)	Nil
Sarah Glaze et al (2008)	0.08	PPH (37)	-
Present Study	0.097	PPH (43.3); RU (32); MAP (24.7)	11.2

Discussion

Cesarean hysterectomy traditionally is classified as elective for the management of incidental diseases like cervical intraepithelial neoplasia (CIN), or for the purpose of sterilization, and in cases of emergency to control intractable hemorrhage. With changes in practice in the light of modern evidence, the former two indications seem to have lost relevance. However, there has been an upsurge in cases of postpartum hemorrhage requiring hysterectomy primarily due to the changed settings in which postpartum hemorrhage presents itself in modern obstetrics.⁵ Obstetrical hysterectomy still remains a lifesaving operation. The most common indications for the obstetric hysterectomy are: uterine atony and rupture of the uterus. Obstetrical hysterectomy is connected with high risk of complications and maternal mortality.⁶

Emergency PH remains a potentially life-saving procedure which every obstetrician must be familiar with. Incidence of emergency hysterectomy in the present study was 0.095% which is similar to that in many other studies as shown by Pawar et al (1998)⁷, Sarah Glaze et al (2008)⁸, and Praneshwari Devi et al (2004)⁹. Some studies have shown lower incidence [Karen M Flood et al (2009)¹⁰; Wai Yoong et al (2006)¹¹, Selc,uk O” zden et al (2004)¹²] than us probably because our institution is an important referral centre in this region and most of our cases were referred from outside where antenatal check-up, labour monitoring, conservative management of PPH is not adequate. There are studies which also have shown much higher incidence comparatively [Sahasrabhojaneet Mrinalini et al (2008)¹³, Kant Anita et al (2005)¹⁴, Kore et al (2001)¹⁵] may be because of small number of cases for the study or the institutes are apex one serving only high risk cases which were referred from outside in moribund condition after complications had occurred.

The PPH is the most common indication for PH in our study. This is comparable to other studies as shown by Kant Anita et al (2005)¹⁴, Sahasrabho-

janeet Mrinalini et al (2008)¹³, Wai Yoong et al (2006)¹¹, Selc,uk O” zden et al (2004)¹², Sarah Glaze et al (2008)⁸. In our study ruptured uterus (32%) was the next most common indication followed by morbidity adherent placenta (24.7%). In some other studies ruptured uterus was commonest indication as shown by Pawar et al (1998)⁷, Pati S et al (1998)¹⁶, Kore et al (2001)¹⁵. Ruptured uterus is a serious obstetric emergency with high maternal and perinatal mortality. Occurrence of uterine rupture is significantly associated with grand multiparity, scarred uterus, lack of proper antenatal care, unsupervised labour at home, injudicious use of oxytocin and prostaglandins. These factors are largely preventable. Though total hysterectomy is operation of choice, subtotal hysterectomy is quicker and hence preferable in moribund patients. In case of placenta previa, total hysterectomy is usually mandatory.

Postoperative shock, pyrexia, paralytic ileus, and wound infection were common complications. Prolonged labour, antepartum haemorrhage, obstructed labour, intrauterine manipulation and dormant sepsis probably account for these complications. These could be prevented by early referral of these cases to well equipped centres which can treat emergency obstetric cases promptly and efficiently. In our study the maternal mortality was 11.1% which is comparable with Kant Anita et al (2005)¹⁴, Kore et al (2001)¹⁵, Wai Yoong et al (2006)¹¹ and Pawar et al (1998)⁷.

Saeed et al reported that the duration of surgery was shorter but the complications were higher in total compared with subtotal hysterectomy. They concluded that subtotal hysterectomy is a reasonable alternative in emergency obstetric hysterectomy.¹⁷ All patients received blood transfusions. Febrile illness was the commonest maternal morbidity seen in 50% cases followed by anaemia an. Febrile morbidity was the commonest complication of EPH in Kant and Wadhvani study (39.02%).¹⁴ The risk factors were multiparity, previous caesarean delivery, current caesarean birth and abnormal placentation. Similar

risk factors were observed in other studies.^{18, 19} Obstetric hysterectomy is a necessary life-saving procedure. Abnormal placentation is the leading cause of emergency hysterectomy when obstetric practice is characterized by a high caesarean section rate. Therefore, every attempt should be made to reduce the caesarean section rate by performing this procedure only for valid clinical indications.²⁰

The most common indication for peripartum hysterectomy in this study was Atonic postpartum hemorrhage. This is similar to findings from other centres in Nigeria and other developing countries [21-24], but varies from results from developed countries where placenta praevia and morbidly adherent placenta are the most frequent indications [25, 26]. Interestingly, in contrast to what obtains in Asia where injudicious use of oxytocics or obstetric manipulation were the main causes of uterine rupture²⁷, in our study, all the cases of uterine rupture followed prolonged obstructed labour. This goes to highlight the significant contribution ruptured uterus from prolonged obstructed labour makes to poor reproductive health indices of our women and also to the alarming high maternal mortality and morbidity in our environment.

The incidence of PH that occurred with a history of previous CS has increased significantly. The association between the rising CS rate and incidence of PH with a history of CS is attributable mostly to the occurrence of morbidity as well as stillbirths in the post caesarean group compared to the non post CS group who required hysterectomy. Operative difficulty as well as chances of injury to the ureter, urinary bladder are much more in the post CS group because of much higher incidence of placenta previa and morbidly adherent placenta.

The number of cases of PH has not increased significantly over the years in our study. Despite this finding, we are concerned that, with the worldwide increase in CS rates, there will be a significant domino effect involving increased deliveries after CS and increased morbidly

adherent placenta and ruptured uterus cases. There is a concern that will be a rise in the number of obstetric hysterectomies required in the future.

Our study had a few limitations, including data collection from a two tertiary health care centers. Options like internal iliac ligation may in some cases remove the need for hysterectomy. Nevertheless, the strength is that we have reported the facts in the setting of a rapidly developing country with easy hospital access, booked cases, and institutional deliveries.

Conclusion

The leading indications for emergency peripartum hysterectomy are uterine atony, ruptured uterus and placenta previa with placenta accreta. The higher incidence of emergency peripartum hysterectomy is because of the higher prevalence of risk factors like multiparity, previous caesarean section, placenta praevia and current caesarean delivery. Adequately equipped antenatal care, early identification of risk factors, hospital delivery facilities and timely intervention by an obstetrician to carry out medical/conservative surgical treatments of primary postpartum haemorrhage are needed to reduce the incidence of EPH and morbidity associated with it.

As life-saving procedure to deal with obstetric complication when medical and conservative surgical procedure fail emergency hysterectomy are performed. Elderly gravida with IVF pregnancy, history of previous LSCS (with adherent placenta) and history of myomectomy are risk factor for peripartum hysterectomy.

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