

## Emergency peripartum hysterectomy: A three year experience at a tertiary care center

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### ABSTRACT

**Introduction:** Emergency peripartum hysterectomy (EPH) is a major surgical procedure performed for life threatening obstetrical hemorrhage, during or immediately after abdominal and vaginal deliveries. It is considered as one of the most dramatic operations in modern obstetrics, performed after failure of all conservative methods to secure haemostasis in the presence of uncontrollable hemorrhage. In majority of the cases it is unavoidable, unplanned and needs to be performed expeditiously to minimize the complications. Peripartum hysterectomy being an unplanned emergency is associated with significant morbidity and mortality.

**Aims and objectives:** The objective of this study was to estimate the incidence, indications, risk factors and the maternal outcome, associated with emergency peripartum hysterectomy performed in a tertiary care center.

**Materials and Methods:** A retrospective observational study of patients was conducted at the Department of Obstetrics and Gynaecology, at Prathima Institute of Medical Sciences, from July 2012 to June 2015. Records of all patients, who had undergone peripartum hysterectomy during the study period were obtained. Data was collected and analyzed to estimate various demographic characteristics, obstetric characteristics, indications & type of operation performed. Maternal and perinatal outcome were evaluated.

**Results :** During the 3 years of study period, 10 cases had undergone EPH. The estimated incidence was 1.9 per 1000 deliveries. Commonest indication of EPH in our study was abnormal placentation (placenta previa with or without morbidly adherent placenta). We performed total hysterectomy in eight cases (80%) and subtotal hysterectomy in 2 cases (20%). Blood transfusion was required in all women who underwent EPH, but more than five units were transfused in 5 cases. Bladder injuries were observed in 2 cases. Febrile

illness observed in four cases of EPH. One case underwent relaparotomy for haemoperitoneum and one case was complicated with DIC. No maternal mortality was observed in this study.

**Conclusion :** EPH is a life saving procedure for managing life threatening obstetrical hemorrhage, when all other conservative methods fail. Most of the time it is unplanned and unavoidable. Therefore antenatal anticipation of risk factors, involvement of experienced obstetrician and a prompt and timely intervention may improve the outcome.

### INTRODUCTION

EPH is a major surgical procedure performed for life threatening obstetrical hemorrhage, during or immediately after abdominal and vaginal deliveries<sup>1-5</sup>. It is considered as one of the most dramatic operations in modern obstetrics, performed after failure of all conservative methods to secure haemostasis in the presence of uncontrollable haemorrhage<sup>6</sup>. In majority of the cases it is unavoidable, unplanned and needs to be performed expeditiously to minimize the complications.

The first caesarean hysterectomy was described in 1876, by Eduardo Porro of Milan and was performed for uncontrolled postpartum hemorrhage<sup>7</sup>. The common indications described in literature are intractable hemorrhage due to abnormal placentation (placenta previa with or without accreta), uterine atony, uterine rupture, leiomyoma, coagulopathy, and laceration of uterine vessels, which failed to be controlled by conservative measures. Globally the relative frequency of these indications shows a variation depending upon the population of study and the practice pattern<sup>8,9</sup>. In general, the leading cause in developing countries is uterine atony and abnormal placentation in developed world. Since 1980, a change in trend of epidemiology has been observed in various studies<sup>1</sup>. Uterine atony and rupture have been overtaken by abnormal placentation which is thought to be due to improvement in conservative medical and surgical management of uterine atony & reduced rate of classical caesarean section. The actual incidence of placenta previa and

morbidity adherent placenta is increasing because of rising rate of caesarean section worldwide. Studies also consistently show that previous cesarean section increases the risk of EPH and abnormal placentation is associated with previous uterine scar.

The global incidence of emergency peripartum hysterectomy varies from 0.24 to 8.9 per thousand of deliveries<sup>6</sup>. Higher incidence is observed in developing countries.

Peripartum hysterectomy being an unplanned emergency is associated with significant morbidity and mortality. As compared to non obstetric hysterectomy, it has a 25 times higher mortality<sup>10</sup>. The improvement in conservative medical & surgical management of postpartum hemorrhage and blood transfusion facilities has improved the outcome<sup>11-13</sup>.

## MATERIALS AND METHODS

Records of all patients, who had undergone peripartum hysterectomy within 24 hours following vaginal and caesarean deliveries, for obstetrical hemorrhage unresponsive to other available conservative interventions, during study period, were obtained from labour ward register, operation theater register, intensive care unit register and pathology department records. Data was collected and analyzed to estimate the various demographic characteristics, obstetric characteristics, indications, type of operation performed. Maternal and perinatal outcome were evaluated.

## RESULTS

During the 3 years of study period, the total numbers of deliveries were 5226, out of which 10 cases had undergone EPH. The incidence calculated was 1.9/ 1000 deliveries. Out of ten cases, 7 cases of EPH were performed after caesarean section (CS) and 3 cases after normal vaginal deliveries.

The mean age of presentation was  $27.5 \pm 3.6$  years (range 31-41 weeks). Majority of the cases (80%) of EPH belonged to an age, older than 25years. Most of the cases (70%) were unbooked while only 30% of the cases of EPH were booked. 80% of the women, who underwent peripartum hysterectomy had a low socioeconomic status [Table 1].

Most of the cases (90%) were multiparous and one case was grand multiparous. The mean gestational age observed was  $36 \pm 2.8$  weeks (ranging from 32 to 41 weeks). 70% of the cases had history of cesarean section in previous pregnancy and 30% of the cases had normal vaginal deliveries [Table 2].

In our study we observed that the commonest indication of emergency peripartum hysterectomy was abnormal placentation (placenta previa with or without morbidly adherent placenta), which accounts for 70% of total

cases. Second common indication for EPH observed was uterine rupture (20%) and only in 10% of the cases uterine atony was observed. Both the cases of uterine rupture were observed in previously scarred uterus [Table 3]. Out of those ten cases of EPH, we performed total hysterectomy in eight cases (80%) and subtotal hysterectomy in 2 cases (20%). Before proceeding for hysterectomy, conservative medical and surgical intervention were tried to control bleeding in all women. Haemostatic suture applied in 4 cases, bilateral uterine artery ligation done in 3 cases, bilateral internal iliac artery ligation performed in two cases.

The common risk factors observed in our study were multiparity, placenta previa, history of previous cesarean section and caesarean section in index pregnancy [Table 4].

The relative frequency of various complications observed in our study is described in Table 5. Blood transfusion was required in all women who underwent EPH, but more than five units were transfused in 5 cases. Bladder injuries were observed in 2 cases. Febrile illness observed in four cases of EPH. One case underwent relaparotomy for haemoperitoneum and one case was complicated with DIC. No maternal mortality was observed in this study.

In our study live birth rate was 70% (7 cases). Out of ten cases of EPH, seven cases delivered live baby and three had still birth. Among seven live babies, one early neonatal death was observed.

Table 1: Demographic characteristics

Characteristics		No. of Cases	Percentage
1. Age	<20	0	0%
	20-25	2	20%
	26-30	6	60%
	>30	2	20%
2. Booking Status	Booked	3	30%
	Unbooked	7	70%
3. Socio Economic Status	Lower	8	80%
	Middle	2	20%
	Upper	0	0%

Table 2: Demographic characteristics

Characteristics		No. of Cases	Percentage
1. Parity	1	1	10%
	2-3	8	80%
	4-6	1	10%
2. Previous Pregnancy			
	CS	7	70%
	NVD	3	30%
3. Gestational age (weeks)			
	Mean	36 ± 2.8	
	Range	31-41	

Table 3 : Indications for EPH

Indications	No. of Cases	Percentage
Placenta previa with accreta	7	70%
Uterine atony	1	10%
Uterine rupture	2	20%

Table 4 : Risk factors for EPH

Risk Factors	No. of Cases	Percentage
Multiparity	9	90%
Placenta previa	7	70%
Previous lscs	7	70%
CS in index pregnancy	8	80%

Table 5 : Maternal complications

Complications	No. of Cases	Percentage
Maternal morbidity		
Blood transfusion(> 5units)	5	50%
Febrile illness	4	40%
Bladder injuries	2	20%
Relaparotomy	1	10%
DIC	1	10%
Maternal mortality	0	0%

## DISCUSSION

Postpartum hemorrhage is one of the leading causes of maternal mortality in modern obstetrics. Most of the times it is managed by conservative, medical and or surgical interventions. But uncontrollable hemorrhage sometimes fails to respond to conventional conservative methods. Emergency peripartum hysterectomy is performed in that situation as a life saving surgical procedure.

The reported incidence of EPH varies from 0.24 to 8.9 per thousand deliveries<sup>6</sup>. Ranging from 0.2(Norway), 0.3(Ireland), 0.5(Israel). 0.63(Saudi Arabia), 1.2 to 2.7 per thousand deliveries in USA<sup>1,14-17</sup>. Higher incidence is observed in developing countries. The incidence observed in our study was 1.9 per 1000 deliveries. It is comparable to study conducted by Sahu et al and Kastner et al<sup>18,19</sup>. This high incidence of EPH is observed in our study as our institution is a tertiary care and referral center for high risk pregnancies and most of the cases are referred late. The majority of the cases are unbooked and has a poor access to healthcare.

The most common indication of EPH in our study was abnormal placentation (placenta previa with or without accreta) followed by uterine rupture and uterine atony. Various studies in developed nations are showing similar higher incidence of morbidly adherent placenta as our study. Morbidly adherent placenta was observed in 48.9% by Kastner et al<sup>19</sup> and 50% of cases by Basket et al<sup>20</sup> and Kwee et al<sup>1</sup>. In recent years, abnormal placentation has become a common indication due to increase in number of previous CS<sup>1-6, 14</sup>. Kwee et al<sup>1</sup> reported that both previous CS and cesarean section in index pregnancy were associated with a significant increased risk of EPH. The increase in number of previous CS increases the risk of placenta accreta. The risk of placenta accreta increased from 0.19% for one previous CS to 9.1% for four or more previous CS. The type of surgical management has a direct relationship with the extent of abnormal attachment. The attempt to separate the adherent placenta can induce a massive hemorrhage. Thus a prompt and timely decision to proceed to hysterectomy may improve the outcome<sup>21</sup>.

In our study we had performed 80% total hysterectomy and 20% subtotal hysterectomy, as majority of our cases are placenta previa with or without accreta in which the bleeding was from lower uterine segment. Currently the proportion of subtotal hysterectomy ranges from 53-80%<sup>2,22</sup>. Subtotal hysterectomy report a lesser blood loss, reduced operative time and reduced complication rate as compared to total hysterectomy<sup>23</sup>. Subtotal hysterectomy may not be effective in controlling the bleeding from lower uterine segment as in placenta previa. In that situation total hysterectomy has to be considered. The risk factors observed in our study were multiparity, previous caesarean section, caesarean section in index pregnancy, placenta previa, etc. similar risk factors were observed in other studies<sup>1-6</sup>. Maternal morbidity observed in our study were requirement of blood transfusion (50%), febrile

illness (40%), bladder injuries (20%), relaparotomy (10%) and DIC (10%). There was no maternal mortality in our study

Machado LS<sup>6</sup> analyzed the complications of EPH from various studies. Observed Maternal morbidity rate was 26.6 to 31.5%. The common complications observed were blood transfusion requirement, febrile episode, urinary tract injury, wound infection, DIC, ileus and vaginal cuff bleeding. Maternal mortality ranges from 0-12.5% with mean of 4.8%.

## CONCLUSION

EPH is a life saving procedure for managing life threatening obstetrical hemorrhage, when all other conservative methods fail. Most of the time it is unplanned and unavoidable. Therefore antenatal anticipation of risk factors, involvement of experienced obstetrician and a prompt and timely intervention may improve the outcome. The indication of EPH in recent years has changed from traditional uterine atony to abnormal placentation, which is thought to be due to increase in rate of CS. So attempt should be made to reduce the rate of primary CS.

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