EMERGENCY PERIPARTUM HYSTERECTOMY- STILL A LIFE-SAVING TOOL IN MODERN DAY OBSTETRICS- A 3-YEAR STUDY

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ABSTRACT

BACKGROUND

Emergency Peripartum Hysterectomy (EPH) implies removal of uterus at the time of delivery or in the immediate postpartum period, usually carried out as a last resort in uncontrollable life-threatening obstetric haemorrhage. Recent studies show an increase in these procedures being done for abnormal placentation, which refers to both placenta praevia and morbidly adherent placenta praevia or accreta.

The aim of the study is to determine the incidence, indications, risk factors and complications of Emergency Peripartum Hysterectomy (EPH).

MATERIALS AND METHODS

This is a retrospective case series involving detailed examination of the case records of patients for 3 years who had emergency peripartum hysterectomy between January 2013 and December 2015 in the Department of Obstetrics and Gynaecology, Government Medical College, Kozhikode. We analysed the incidence, indications, risk factors, type of hysterectomy and the complications of emergency peripartum hysterectomy.

RESULTS

There were 49,125 deliveries of which 65.22% were vaginal and 34.78% were by caesarean section. Hundred and five women underwent emergency peripartum hysterectomy giving an incidence of 2.1 per 1000 deliveries. The indications of EPH were mainly placenta previa with prior caesarean section. Morbidly adherent placenta was seen in 60 of the 63 (60%) cases followed by atonic PPH (19%) and rupture uterus (10.47%). There were two cases of maternal death. Inadvertent cystotomy was the most important complication in our series (6.66%). Sixty nine (65.7%) had previous delivery by caesarean section and 74 (70.4%) women delivered by caesarean section.

CONCLUSION

Morbidly adherent placenta in women with prior CS was the most common indication to perform emergency peripartum hysterectomy. Timely decision for hysterectomy significantly reduced the maternal morbidity and is a lifesaving procedure.

KEYWORDS

Emergency Peripartum Hysterectomy, Placenta Previa Accreta Caesarean Delivery, Previous Caesarean Section.

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BACKGROUND

Emergency Peripartum Hysterectomy (EPH) implies removal of uterus at the time of delivery or in the immediate postpartum period, usually carried out as a last resort in uncontrollable life-threatening obstetric haemorrhage. It is one of the most demanding surgical procedure performed in obstetric practice. Postpartum haemorrhage remains an important cause of significant maternal morbidity and mortality throughout the world. According to the report of confidential review of maternal deaths 2006-09, Kerala, the number of maternal deaths due to haemorrhage was 19.38%. Studies from Saudi Arabia and United Kingdom also showed an increased number of maternal deaths due to haemorrhage.[1] Though conservative measures to control obstetric haemorrhage should be attempted first, decision of hysterectomy can save many maternal lives.

Earlier, the most common indication for emergency peripartum hysterectomy was uterine atony and uterine rupture.[2,3,4] In recent studies, these indications have been overtaken by abnormal placentation, which refers both placenta praevia and morbidly adherent placenta praevia (accreta). The incidence of uterine atony as the indication for emergency peripartum hysterectomy is decreasing due

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to the widespread practice of active management of third stage of labour. The incidence of uterine rupture is reduced considerably in lower segment caesarean section. Despite being a lifesaving procedure, EPH is not without risks. It is known to be associated with uncontrolled bleeding, blood transfusion risks, infections and disseminated intravascular coagulation. All these, increased maternal morbidity and mortality. In this background, the study was carried out.

Aims and Objective

1. To determine the incidence, indications, predisposing factors and complications of emergency peripartum hysterectomy.
2. To study the relative risk of emergency peripartum hysterectomy with caesarean deliveries.

MATERIALS AND METHODS

A retrospective case review of all women who underwent peripartum hysterectomy was carried out after taking approval from Institutional Ethics Committee. The study covered the period from January 2013 to December 2015. Emergency peripartum hysterectomy is defined as hysterectomy performed after 20 weeks of gestation for uncontrolled uterine bleeding not responding to conservative measures at the time of delivery or within 24 hours of delivery.

Women who had peripartum hysterectomy during the study period were identified from the parturition register, which is a record of all the births in the institution. As our hospital is a tertiary care centre, details of patients referred from peripheral hospitals were obtained from emergency operation register. Information on demographic and clinical variables like age, parity, gestational age, number of previous caesarean sections, presence of placenta praevia/accreta, mode of delivery, indication for hysterectomy, quantity of blood and blood products transfused, operating time, presence of complications and need for additional surgery were obtained from case records. All surgeries were performed by senior obstetricians. Total number of deliveries and caesarean sections during study period was also noted. Expertise from urologist was ensured as and when needed to take care of bladder rent repairs. The strategy for blood and blood products transfusion was mainly decided upon by anaesthesiologist.

Descriptive analysis were carried out to summarise relevant variables. Statistical analysis was done by using EPI Info Software.

RESULTS

During the 3-year study period, there was a total of 49,125 deliveries in our institution, out of which, 32,030 (65.22%) were vaginal and 17,095 (34.78%) were caesarean deliveries. Out of this, 105 women underwent emergency peripartum hysterectomy representing an incidence of 2.1 per 1000 deliveries. There were 11 (10.6%) cases of rupture uterus. Demographic and clinical data associated with hysterectomies are shown in Table 1.

		Total (n=105)	Percentage
Age	<25 years	16	15.23
	26-30	56	53.33
	31-35	28	26.66
	>35	5	4.46
Parity	1-2	50	47.61
	>3	55	52.38
Gestational age	<34 weeks	6	5.71
	34-36 weeks	20	19.04
	>36 weeks	79	75.20
Mode of delivery	Vaginal delivery	19	18
	Caesarean section	75	71
	Rupture uterus	11	10.5

Table 1. Demographic and Clinical Profile

Age wise distribution of 105 patients who underwent EPH revealed that 16 (15.23%) were below the age of 25 years, 56 (53.33%) were between 25 to 30 years, 28 (26.66%) women between 31 to 35 years and 5 (4.76%) were above the age of 35 years. One patient was only 18 years and hysterectomy had to be done for uterine atony. Regarding parity, 46 (43.8%) women were para 2 and 44 (41.9%) were para 3. Four (3.8%) were primipara and 3 (2.8%) grand multipara.

Of the 105 cases, 69 (65.7%) women had previous caesarean deliveries. Twenty eight (26.7%) had 2 prior caesarean deliveries and 5 (4.7%) had 3 prior caesarean deliveries. Caesarean section was done in 75 patients out of the 105. Majority of women had term delivery. Seventy nine (75.2%) delivered after 36 weeks of gestational age, 20 (19%) between 34 to 36 weeks and 6 (5.51%) delivered before 34 weeks.

The most common indication for EPH was previous caesarean section with abnormal placentation with morbidly adherent placenta accounting for 52.14% of the cases. In certain cases of placenta praevia, bleeding could not be controlled from the placental site proceeded to hysterectomy. In women with antenatal diagnosis of placenta accreta and prior caesarean delivery, we opted for classical section and proceeded to hysterectomy without disturbing placental site. These cases were diagnosed to have morbidly adherent placenta by MRI scan antenatally. This was found to be effective in reducing blood loss. In patients who had atonic PPH after delivery, caesarean or vaginal, subtotal hysterectomy was performed as the

procedure is less time consuming. In one patient, during caesarean section, the incision extended laterally to broad ligament and created a big haematoma could not be evacuated, hence decided for hysterectomy. A grand multipara patient developed traumatic PPH after delivery had colporrhexis taken for total hysterectomy immediately. Most of the cases of rupture uterus were in patients with prior caesarean section were repair could not be possible. We had rupture uterus in 4 cases following induction of labour. The rupture was along the lateral side of uterus in all cases, hence underwent total hysterectomy. In a 37-year-old grand multiparous lady with multiple large fibroids, hysterectomy was done following caesarean section. Indication for EPH are shown in Table 2.

Indications	n=105	Percentage
Placenta previa with PPH	9	8.50
Placenta previa accreta	60	57.14
Uterine atony	20	19.04
Traumatic PPH	4	3.80
Rupture uterus	11	10.45
Fibroid uterus	1	0.95

Table 2. Indications of EPH

Anaesthesia given were either general or epidural analgesia. Internal iliac artery ligation was done in 6 cases to control stump bleeding. Total hysterectomy was done in all cases of placenta previa and placenta accreta. One patient underwent total hysterectomy with unilateral salpingo-oophorectomy as the ovary and tube was gangrenous.

Complications associated with EPH were seen in 29 patients and the details are listed in Table 3. Disseminated intravascular coagulation was the most common complication and was managed with blood and blood products transfusion. The number of transfusions varied from 2-22 units of packed RBCs, Fresh Frozen Plasma (FFP) and Platelet-Rich Plasma (PRP) with an average of 4-5 units. In 7 patients, bladder was inadvertently opened during surgery and repaired with the help of the urologist. Opening of bladder occurred more commonly in women with morbidly adherent placenta and rupture uterus. These cases were managed postoperatively with both per urethral and suprapubic catheters for 21 days.

In the postoperative period, 7 patients had febrile morbidity were managed with antibiotics according to culture and sensitivity of appropriate samples. Two patients had severe abdominal wound sepsis with wound disruption required resuturing. One patient was subjected to a relaparotomy for internal bleeding. It was tackled with internal iliac artery ligation and reinforcement of the stumps. Average postoperative hospital stay was 9-11 days. Those who had bladder rent repair and two-way drainage stayed in the hospital for about 3 weeks.

Complications	N=29	Percentage
Coagulopathy	10	9.52
Opening of urinary bladder	7	6.66
Febrile morbidity	7	6.66
Wound sepsis	2	1.90
Reexploration	1	0.95
Maternal death	2	1.90

Table 3. Complications Associated with EPH

There were two maternal deaths in this series. One patient referred from a peripheral hospital with atonic PPH in shock underwent subtotal hysterectomy, but could not be saved. Second patient was a case of ruptured uterus following delivery who came in irreversible shock. She could not be salvaged even after emergency hysterectomy and massive transfusion.

DISCUSSION

Emergency peripartum hysterectomy still remains a necessary surgery for managing intractable obstetric haemorrhage. When to resort to this drastic step has always been an obstetrician's dilemma especially in a primipara. Often a number of conservative approaches were undertaken before sacrificing her reproductive potential. The prevalence of peripartum hysterectomy varies in different parts of the world depending on the acceptability, healthcare resources, socioeconomic status, cultural habits and standards of obstetric care.

With the advancement in the medical management of PPH, there is a changing trend noticed in the incidence of EPH. The incidence of EPH of 2.1 per 1000 deliveries in our series is comparable with other reported studies.[5,6,7,8,9] Common indications for EPH were abnormal placentation with previous caesarean section (52.14%) followed by uterine atony (19.04%). Wani RV et al[10] in their series showed that 77.4% of cases of EPH were done for abnormal placentation and 14.5% for uterine atony. Sohasrabhojanee N et al[11] in their study had reported uterine atony as the most common cause for EPH.

Risk Factors- CS	Number	Total	Rate of EPH	Relative Risk	95%, CI
No	19	31,931	0.6	8.44	5.02-14.34
Yes	86	17,194	5		P <0.0001

Table 4. Relative Risk of EPH with Caesarean Deliveries

Some of the known risk factors for EPH are caesarean section, previous caesarean section, high parity and advanced maternal age. Studies have shown that caesarean section per se increases the risk of EPH.[12,13,11,9] In agreement with these, our study showed that the rate of EPH was 5 per 1000 caesarean deliveries as against 0.6 per vaginal deliveries. Thus, as shown in Table 4, the relative risk of EPH was 8.44 for caesarean deliveries compared to vaginal deliveries.

Author	Incidence of EPH/1000	Mean Age	Parity Mean/Range	Previous CS	Delivery by CS
Awan	0.85	35.6	NA* (1-3)	54.8	87.1
Wani	1.07	35	5.8 (0-17)	83.9	91.9
Kwee	0.33	33	1.3 (NA)[a]	52.1	64.6
Yucel[12]	0.29	31	2 (0-6)	20.6	47.1
Our study	2	28.5	2.7 (1-7)	69	71.4

Table 5. Comparison Regarding Age, Parity, Previous CS and Delivery by CS

*Not available.

The present study identified placenta accreta as the major indication for hysterectomy, which is comparable with other studies also.[4,5,6,7,10] Out of the 69 cases of previous caesarean section, 60 (86.95%) had morbidly adherent placenta. Clark et al[2] reported in his study (1978-1982) that uterine atony was the most common indication for EPH followed by placenta accreta. Korejo et al[14] and Chestnut et al reported uterine rupture as a major indication followed by uterine atony and placenta praevia.

The increase in peripartum hysterectomy in our series could be explained by the increase in number of women with prior caesarean deliveries (65.70%). The association between previous caesarean section, placenta praevia/accreta is well established. Clark et al[2] reported that in patients with placenta praevia, the risk of having placenta accrete increased from 24% with one prior caesarean delivery to 67% with three or more prior caesarean deliveries. Silver et al[15] confirmed this association. In our study, 52.17% had previous one caesarean delivery and 40.50% had previous 2 caesarean deliveries. In our women, most of them were undergoing sterilisation following second or third delivery.

The use of ultrasonography, colour flow Doppler and magnetic resonance imaging can help in the early diagnosis of placenta accreta in women with placenta praevia who had prior caesarean delivery or uterine surgery. This helps the clinician to plan the surgery and to counsel the women preoperatively. In case of morbidly adherent placenta in previous caesarean scar, a classical caesarean section followed by hysterectomy without attempting to remove the placenta can minimise blood loss, thereby reducing the quantity of blood and blood products transfusion.

It is often debated whether to perform total hysterectomy or subtotal hysterectomy, Wani R V et al[10] in their study showed no statistically significant difference between total versus subtotal hysterectomy with respect to operating time, blood transfusion and intra or postoperative complications. We performed total hysterectomy more frequently as our major indication was placenta previa with accreta. Ogunniyi et al[16] had reported that subtotal hysterectomy was associated with more postoperative complications. Yucel et al[17] preferred total hysterectomy to subtotal hysterectomy when active bleeding occurs from the lower uterine segment as the cervical branch of uterine artery remains intact. In our series, for uterine atony, we performed subtotal hysterectomy as it is easier, required less operating time and less units of transfusions.

EPH is associated with high incidence of maternal morbidity and mortality. Most common complications were Disseminated Intravascular Coagulation (DIC) and urinary tract injuries. We encountered less complications compared to other studies.[10,18] Disseminated intravascular coagulation was the major complication (9.5%) and was resulted mainly from haemorrhage. All these cases could be managed with massive transfusion. An early decision for hysterectomy and prompt transfusion of blood and blood products could reduce the incidence of DIC. The incidence of accidental cystotomy occurred in 6.6% of cases, which was similar to that of Anita et al.[19] All cases of bladder injuries were in women with 2 or 3 prior caesarean sections and placenta accreta.

In this series, there were 2 maternal deaths (1.9%), which was less compared other studies.[9,20] Delay in deciding to perform hysterectomy and related hypotension and irreversible shock may have been the prime factors in both cases. Begum M et al[18] in their study also found that early decision for hysterectomy may likely decreased maternal morbidities and deaths.

CONCLUSION

Even though, emergency peripartum hysterectomy is a procedure associated with significant maternal morbidity, it is a lifesaving measure, if we take timely decision in selected cases. As the increased rate of caesarean section is a problem worldwide, we have to think of conservative management for placenta accrete like focal resection of myometrium and repair. Double layer closure of uterine incision during caesarean section and avoiding decidua are suggested practice to prevent placenta accreta in subsequent pregnancies.

Limitations of the study- Major limitation of the study was its retrospective nature. Incomplete documentation of certain situations in the case records also noticed.

Abbreviations

EPH- Emergency Peripartum Hysterectomy, DIC- Disseminated Intravascular Coagulation, PPH- Postpartum Haemorrhage, MRI- Magnetic Resonance Imaging.

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