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Dr. M Ilanjselvi
Assistant Professor, Department of Obstetrics and Gynecology, Chengalpattu Medical College and Hospital, Chengalpattu, Tamil Nadu, India

Dr. D Vinitra
Department of Obstetrics and Gynecology, Chengalpattu Medical College and Hospital, Chengalpattu, Tamil Nadu, India

Dr. VG Poorani
Department of Obstetrics and Gynecology, Chengalpattu Medical College and Hospital, Chengalpattu, Tamil Nadu, India

Corresponding Author:
Dr. M Ilanjselvi
Assistant Professor, Department of Obstetrics and Gynecology, Chengalpattu Medical College and Hospital, Chengalpattu, Tamil Nadu, India

Emergency peripartum hysterectomy in modern obstetrics: A retrospective study at a tertiary care hospital

Dr. M Ilanjselvi, Dr. D Vinitra and Dr. VG Poorani

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Abstract
Background: The purpose of the study is to identify the incidence, risk factors, indications, outcomes and complications following emergency peripartum hysterectomy.
Methods: This was an Retrospective observational study done at Chengalpattu Medical College Chengalpattu from January 2019 to January 2021. Case records of all the women who underwent emergency peripartum hysterectomy were studied.
Results: There were 16 cases of emergency peripartum hysterectomies done during the study period from January 2019 to 2021 for 2 years the incidence is 0.7/1000 deliveries. The commonest age group undergone EPH is 20 to 25 years of age the are usually multiparous women (31.25%), > 35 weeks of gestation about (68.75%). Uterine atonicity (43.75%) is the most commonest indication for EPH followed placenta previa with morbidly adherent placenta previa (31.2%), rupture uterus (18.5%), Broad ligament hematoma(6.25%). Total hysterectomies were done for 11 cases (68.75 %), sub total hysterectomies were done for 5 cases (31.25%), fever 4 cases (25%) and wound infection 3 cases (18%) are the most common complication, there were 3 maternal death in this study.
Conclusion: Early decision and performance of EPH before the general condition of the patient deteriorates is the key in success and less post operative complications. EPH is the most commonly performed life saving procedure in obstetrics. The incidence is lower in our study compared to the developing countries. Early identification of the high risk patients, effective antenatal care, early decision on hysterectomy, blood components transfusion, improvement in surgical skills will reduce the further incidence and complications, mortality, morbidity of Emergency Peripartum Hysterectomy.

Keywords: Uterine atony, rupture uterus, cesarean hysterectomy, emergency peripartum hysterectomy

Introduction
Emergency obstetric hysterectomy is the removal of the entire uterus with the partial or complete removal of the cervix performed during puerperium performed for life threatening obstetric condition [1, 2]. It includes both cesarean hysterectomies, done following cesarean delivery, and post partum hysterectomies following vaginal deliveries. A near miss event is defined as women who nearly died but survived a complication that occurred during pregnancy, childbirth, or within 42 days of termination of pregnancy. Emergency Peripartum Hysterectomy was first performed at the end of the 19 th century in order to prevent maternal deaths resulting from hemorrhage and sepsis after prolonged labour. The First successful operation was performed in 1876 [3, 4]. Obstetric hemorrhage is the main cause of maternal death in india [5]. Emergency obstetric hysterectomy is usually performed as an life saving procedure in interactable hemorrhage following uterine atony, placenta accrete syndrome, cesarean delivery, rupture uterus, infections. Although obstetric hysterectomy is rare in modern obstetrics [6]. The main aim of the study is to identify the incidence, complications, risk factors, indications, maternal and perinatal outcomes following emergency obstetric hysterectomies.

Methods
This is an Retrospective study was conducted at Chengalpattu Medical College and Hospital From January 2019 to January 2021 for a period of 2 years. Medical and surgical records of all patients who had undergone emergency peripartum hysterectomy following vaginal and cesarean delivery between January 2019 to January 2021 were scrutinized and evaluated retrospectively after surgery starting from detailed history of patient, past history of chronic

illness, previous surgeries, blood transfusion on admission, preoperative, intra operative, post operative findings and investigations were documented, post operative complication identification and management. There were no elective obstetric hysterectomies performed in our hospital. All the emergency obstetric hysterectomies were performed within 24 hours of delivery except 1 case which was done after 24 hours of delivery.

Maternal age, parity, gestational age, socio economic status, indication for cesarean delivery, booking status, indications for emergency obstetric hysterectomy, amount of blood transfusion, immediate and late post operative complication, duration of hospital stay, maternal and fetal mortality and morbidity were documented and evaluated. Women who delivered before 28 weeks of gestation undergone hysterectomy and hysterectomy done after 42 days of delivery were not included in this study.

Results

The study was done in Chengalpattu Medical College Hospital from January 2019 to January 2021. Total of 22451 deliveries occurred during the study period, the incidence of emergency obstetric hysterectomy in our study was 0.7 per 1000 deliveries (Table: 1). It is 0.25% following vaginal delivery and 0.75% following abdominal deliveries. Totally 16 Emergency peripartum hysterectomies were done.

The commonest age group (Table: 2) involved in this study was 20 to 25 years of age 6 cases(37.55%), 26 to 30 years of age 4 cases (25%), 30 to 31 years of age 4 cases (25%) and< 20 years 1 case(6.25%), and 36 to 40 years 1 case (6.25%). Multigravidas are more prone for hysterectomies 12 cases (75%) and primi were 4 cases (25%) (Table: 3).

According to the gestational age (Table: 4) 11 case of EPH were done after 35 weeks of gestation (68.5%), 30 to 35 weeks 3 cases (18.75%) 28 to 30 weeks 2 case (12.5%) as the gestational age increases the risk of hysterectomy is also increases.

Commenest cause for hysterectomies in this study was uterine atonicity 7 cases (43.75%), followed by placenta previa with morbidly adherent placenta 5 cases (31.2%), rupture uterus 3 cases (18.5%) and Broad ligament hematoma 1 case (6.25%)(Table: 5).

In this studied population most of the patients had associated medical (Table: 6), obstetric complications (Table:7) which includes diabetes mellitus 3 cases, pregnancy induced hypertension 5 cases, sepsis 2 cases and Rh negative pregnancy 1 case, obstetric complications includes previous cesarean pregnancy 11 cases, post datism 3 cases, abruption 4 cases, placenta previa 3 cases, polyhydromnios 2 cases, twin pregnancy 1 case, prolonged labour 1 case

In this study subtotal hysterectomy was done for 11 cases (68.75%), and total hysterectomy done for 5 cases (31.25%) (Table:8).

Most commonest complications following hysterectomy in this study was Fever 4 cases, wound infection 3 cases, paralytic ileus cases. There were no urethral, bladder injuries in this study (Table:9).

There were 16 hystrectomies done during the study period, following vaginal and abdominal deliveries , of these deliveries 12 live births, 1 baby still born, 4 babies dead born(including 1 twin), 6 babies were < 2kgs, 5 babies between 2-3kgs, 6 babies were 3-4 kgs (Table:10).

Table 1: Incidence of EPH following vaginal and abdominal delivery.

S. No	Mode of delivery	EOH	Number of deliveries	Incidence (%)
1.	Vaginal delivery	4	11803	0.25
2.	Abdominal delivery	12	10648	0.75
3.	Total	16	22451	0.7

Table 2: Incidence in various age groups

S. No	Age in years	Number of patients	Percentage
1.	< 20	1	6.25
2.	20-25	6	37.5
3.	26-30	4	25
4.	31-35	4	25
5.	36-40	1	6.25
6.		16	100

Table 3: Parity distribution

S. No	Parity	Number of patients	Percentage
1.	Primi	4	25
2.	2nd Gravida	5	31.5
3.	3 rd Gravida	4	25
4.	4 th Gravida	3	18

Table 4: Gestational age

S. No	Gestational age	Number of patients	Percentage
1.	28-30 weeks	2	12.5
2.	30-35 weeks	3	18.75
3.	35-40 weeks	11	68.75

Table 5: Indications for EPH in study population

S. No	Indications	Number of patients	Percentage
1.	Atonic PPH	7	43.75
2.	Placenta previa with morbidly adherent placenta	5	31.5

3.	Rupture uterus	3	18.75
4.	Broad ligament hematoma	1	6.25

Table 6: Associated medical complications

S. No	Medical complication	Number of patients
1.	Diabetes mellitus	3
2.	Pregnancy induced hypertention	5
3.	Sepsis	2
4.	Rh Negative	1

Table 7: Associated Obstetric complications

S. No	Obstetric complications	Number of patients
1.	Previous cesarean delivery	11
2.	Post datism	3
3.	Abruption	4
4.	Polyhydromnios	2
5.	Prolonged labour	1
6.	Placenta previa	3
7.	Multiple gestation	1

Table 8: Type of hysterectomy done in study population

S. No	Type of hysterectomy	Number of cases	Percentage
1.	Subtotal Hystrectomy	11	68.75
2.	Total Hystrectomy	5	31.25
3.	Total	16	100

Table 9: Maternal complications in study population

S. No	Maternal complications	Number of cases	Percentage
1.	Wound infection	3	18
2.	Fever	4	25
3.	Paralytic Ileus	3	18
4.	Septicemia	3	18
5.	Bldder injury	0	0
6.	Uretric injury	0	0

Table 10: Perinatal outcome

S. No	Birth weight	Number of Babies	Viability		Sex		Nicu admission
1.	<2 kg	6	3 live	3 deadborn	M	F	6 babies admitted in nicu
2.	2-3 kg	5	5 live	0	9	8	
3.	3-4 kg	6	4 live	2 deadborn			

Discussion

First cesarean hysterectomy was performed by Storer in United States in the year 1869 [3]. Peripartum hysterectomy is a mutilating surgery in obstetrics which is not accepted by the patients and obstetricians as well. obstetricians performs this surgery as an life saving procedure. The rate of emergency peripartum hysterectomy in this study was 0.7 per 1000 deliveries which similar to the studies reported from developing countries where the variable rate of 2 to 6 per 1000 deliveries [7-9]. The highest incidence of emergency hysterectomy was reported by Zeteroglu *et al.* [3]. In our study majority of the patients who were undergone hysterectomy were belongs to the age group of 20 to 25 years of age which is about 37.5 % and were multiparous women. Which is similar to the studies reported by Najam *et al.* [10] and Amad *et al.* [11]. The commonest indication for emergency peripartum hysterectomy in this study was atonic post partum hemorrhage 43.75% 7 cases nearly 70% of the patients referred from peripheral health centre this study is similar to the study conducted by Kant *et al.* (41.46%) [6] and Agashe and Marathe *et al.* (60%) [12] atonic pph can be reduced by proper pharmacological and surgical meneuvers used in an essential measure to control bleeding but the picture is different in developed countries; different studies from various countries have shown than abnormal placentation has been the primary indication for emergency peripartum hysterectomy [13, 14]. the second commonest indication for EPH in our study was abnormal placentation and morbidly adherent placenta previas is (31.2%) which is similar with study done by Clark *et al.* [2]. The incidence of placenta previa increasesd from 0.5% in general population to 3.9% after one cesarean section and upto 10% after four cesarean deliveries, the raise in incidence of placenta previa and morbidly adherent placenta previa is probably due to global increase incidence of cesarean section rate. Rouf S *et al.* [15] other causes for EPH includes Rupture uterus 18.75% and broad ligament hematoma 6.25% respectively which is similar to study by Kant *et al.* [6].

It has been found in this study that the incidence of emergency peripartum hysterectomy is more commonly occurred in third decade of life 62.5% in the age group between 20-30 years of age similar trend was seen in Amad and Barclay *et al.* [11&16] gravida two had higher chances of hysterectomies 31.25%, primi gravida and 3rd gravida had similar percentage 25%, 3 patients belongs to gravida four about 18%, incidence of hysterectomies common in multigravidas which is similar others studies [16].

Were the incidence is most commonly occurred in 4th gravida >40%.

In this study it was found that 11 (68.75%) were undergone Subtotal hysterectomies, and 5 (31.25%), undergone total hysterectomies for uterine rupture 1 case and broad ligament hematoma were the rent was very deep to the vault and other 3 cases were morbidly adherent placentas. Which is similar with other studies [6&7] the choice of Total or Subtotal hysterectomy may be dedicated by the individual situation.

In this study we have identified that most of the emergency peripartum hysterectomies were done after 35 weeks of gestation 68.75%, 30 to 35 weeks 18.75%, and 28 to 30 weeks 12.5% respectively. In general the intra operative and post operative complications were more common with emergency peripartum hysterectomies in this study we found that DIC, Anemia, Septicemia, fever was the most commonest complications seen in 4 (25%) cases. Wound infection was seen in 3 (18%) cases. Paralytic ileus was seen in 3 (18%) cases and these were similar with the studies done by Zorlu *et al.* [17] injury to bladder, ureter and bowel were commonly encountered during EPH but not even single case had bladder and bowel injuies in our study.

There were 3 maternal death (18%) this was similar to that of studies done by Kanwar *et al.* and siddig *et al.* [18-19] 12% and 9.7% respectively. There was no maternal death in study done by Devi *et al.* [20]. The maternal death in our study was due DIC and septicemia, early decision for hysterectomy could have prevented these deaths. The moribund state of the patient at the time of hysterectomy is likely more responsible for the higher mortality rate.

Conclusions

Severe life threatening hemorrhage requiring hysterectomy is not uncommon procedure in obstetric practice in a modern developing country such as ours. Increasing incidence of cesarean delivery should be reduced. Before proceeding with hysterectomy every effort should be made to conserve the uterus. It is therefore very essential for every obstetrician that everyone should be trained in early diagnosing, treating and performing conservative procedures as uterine and ovarian artery ligation, internal iliac artery ligation. Every institution must continuously continue to evaluate the incidence of cesarean sections rates and its indication because they might influence the incidence and indications of cesarean hysterectomy. Emergency obstetric hysterectomy being an life saving procedure its outcome mainly depends on early diagnosis and timely decision, good surgical techniques. It will reduces the maternal mortality and morbidity further. Early booking visits, identification and categorization of high risk cases, timely counseling to the patients and relatives, early referral to the higher institution can further prevent the incidence and complications of surgery, every obstetric surgeon should be trained to perform the proper skill in hysterectomy to reduce the mortality and morbidity further. Every health personal should be trained in identification of high risk cases and early referral also reduces the incidence to some extent. Every patient should be given proper counseling about her future amenorrhoea.

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