

Original Article

Emergency Peripartum Hysterectomy: A Life Saving Procedure in Obstetrics

D Zeba¹, T Biswas², SR Das³, BN Roy⁴, MA Khair⁵

Abstract:

Emergency peripartum hysterectomy refers to the uterine removal after a caesarean section or normal vaginal delivery for any life saving purpose, immediately after delivery or within the puerperium. In general, abnormal placentation, uterine rupture, and postpartum haemorrhage are the common indications. The prime objective of this study was to determine the frequent indications, peroperative and postoperative complications, maternal and perinatal outcome. This retrospective descriptive study was conducted by analysing recorded data of one year between July 2016 and June 2017 in Faridpur district of Bangladesh. Total 40 cases were analysed. Placenta praevia was the most common indication, whereas uterine rupture was the second one. Urinary bladder injury was the frequent peroperative complication. This bladder injury was common in cases of previous repeated caesarean section associated with placenta praevia. All the patients required three to six unit blood transfusions on average. Four patients expired due to various causes. Most of the patients were elderly aged, multiparous and had previous caesarean sections. The relevant literature analysis was done for comparison, where similarities were found. Total abdominal hysterectomy was the preferred method in this study. Overall, the study will direct the future ways of management.

Key words: Emergency Peripartum Hysterectomy, Placenta Praevia, Uterine Rupture.

Introduction:

Emergency Peripartum Hysterectomy (EPH) refers to surgical removal of the uterus during normal or caesarean delivery or within the puerperium, mostly due to emergency purpose. It complicates 0.2-0.5 in 1000 deliveries worldwide in the 21st century¹. In fact, in the obstetric field, this promising procedure is saving lives for last century^{2,3}. At first, Edward Porro in 1871, launched the procedure to combat alarming maternal death due to postpartum haemorrhage and infection. But when Max Sanger introduced classical caesarean operation in 1882, peripartum hysterectomy became less mandated. The invention of modern

antibiotics and safe blood transfusion made the procedure even less required. Meanwhile, from the 1940s to 1960s, it turned out to be a popular sterilization method. But because of subsequent morbidities, it has fallen from favour in the next decades⁴.

In the modern world, caesarean hysterectomy is usually indicated for leiomyoma and sterilisation. But in the developing countries, it is considered life saving when conservative measures fail to stop an intractable haemorrhage³. Supportively, data show that Australia has EPH rate of 1 in 1420 deliveries, while Nigeria has 1 in 348 deliveries, signifies socioeconomic effect on this practice⁵.

The literature says haemorrhage, uterine rupture, and abnormal placental position or attachment (e.g. placenta praevia, placenta accrete) are the commonest indications of emergency peripartum hysterectomy^{2,3}. Other risk factors include multi-parity, previous caesarean delivery, and infection⁶. Due to frequent caesarean sections, the chance of scar rupture is increasing day by day³. Whereas, due to improvement of the antenatal and emergency obstetric care, the rate of uterine rupture due to obstructed labour is declining.

The emergency hysterectomy can result in severe complications, maternal morbidity, and mortality^{3,7}. But

1. Dr. Dilruba Zeba, MBBS, DGO, MCPS, FCPS (Obstetrics and Gynaecology), Associate Professor, Department of Gynae and Obs, Faridpur Medical College, Faridpur.
2. Dr. Tonmoy Biswas, MBBS, MBGPH, Intern Doctor, Faridpur Medical College Hospital, Faridpur.
3. Prof. Shila Rani Das, MBBS, DGO, MCPS, FCPS (Obstetrics and Gynaecology), Professor, Department of Gynae and Obs, Faridpur Medical College, Faridpur.
4. Dr. Biswanath Roy, MBBS, DGO, MCPS (Obstetrics and Gynaecology), Associate Professor, Department of Gynae and Obs, Faridpur Medical College, Faridpur.
5. Dr. Md. Abul Khair, MBBS, MS (Urology), Assistant Professor, Department of Urology, Faridpur Medical College, Faridpur.

Address of correspondence :

Dr. Dilruba Zeba, MBBS, DGO, MCPS, FCPS (Obstetrics and Gynaecology), Associate Professor, Department of Gynae and Obs, Faridpur Medical College, Faridpur, Bangladesh;
Mobile: +8801712090825; E-mail: dilruba_zeba@yahoo.com

having weighed up the pros and cons, it is always regarded as a vital procedure in obstetric practice⁸. The present study aimed to explore the frequency, indications, and complications of caesarean hysterectomy in a particular region of Bangladesh.

Materials and Methods:

This was a retrospective descriptive study in which authors went through hospital records of patients who encountered EPH from July 2016 to June 2017. The study was undertaken in Faridpur district which is under Dhaka division of Bangladesh. Case details were taken from the hospital files and operative notes. For the concept, EPH was defined as the emergency uterine removal at the time of caesarean or normal delivery or within 2 weeks after the delivery. Cases with less than 30 weeks of gestation and foetal weight less than 1kg were excluded. Before taking the operative decision, various medical and conservative surgical approaches were tried to control the massive haemorrhage. The operations were conducted by the associate or assistant professors and senior consultants, assisted by residents, medical officers and trainees. Minimal changes in operative technique were adopted.

All the patients received preoperative antibiotics and preload-fluids before going through the procedure. After the surgery, patients were closely monitored and vital signs were recorded. In postoperative care, patients were given intravenous fluids, full antibiotic coverage, pain medications and relevant drugs. Facilities of referral to the higher centres were available in critical circumstances.

From the case records, patient demographics, age, parity, gestational age, previous caesarean history, and relevant clinical profiles were extracted. Aetiological factors and indications of emergency peripartum hysterectomy were investigated. Maternal outcome and complications were assessed, so as the perinatal outcome. Blood transfusion number and cause of maternal death were noted as well. All data were gathered and tabulated.

For ethical consideration, patients' autonomy, confidentiality, beneficence, and non-maleficence were maintained. Approval and informed consent were obtained. Data were screened, grouped, and analysed by SPSS version 21.0. Frequency and percentage were determined for comparative purpose. Referencing was assembled by End Note version x7.

Results:

Total 40 cases were reviewed and analysed within the period. Most of the mothers (55%) were more than 32 years of age, and multiparous (70% had parity ≥ 2). Accordingly, gravida was equal to or greater than

3rd gravida for 70%. Maternal gestational age was maximum for 34 to 37 weeks. It is found that, many of the caesarean section was done before full term pregnancy. About 72.5% patients had previous histories of caesarean section. All data regarding the patient profiles are detailed in Table I.

Table I: Basic Patient Profile in the Study Group

Variables	Number	Percentage
Age		
18-24	5	12.5
25-31	13	32.5
32-38	18	45
>38	4	10
Parity		
P1	12	30
P2	15	37.5
P3	8	20
P4	3	7.5
P5	1	2.5
P6	1	2.5
Gravida		
2 nd	12	30
3 rd	15	37.5
4 th	13	32.5
Gestational Age		
30- 34 weeks	8	20
34 – 37 weeks	17	42.5
Above 37 weeks	15	37.5
Previous number of Caesarean Section (CS)		
0	11	27.5
1	9	22.5
2	16	40
3	4	10

All of the patients who underwent emergency caesarean hysterectomy received blood transfusions. Transfusions were given before, during or after the surgery. Half of the patients got one to three units blood and half more than four units blood. Blood transfusion units are distributed in Table II.

Table II: Total Number of Blood Transfusion (BT).

Total Unit of BT	Number	Percentage
1-3	20	50
4-6	16	40
7	4	10

The most frequent indication of emergency caesarean hysterectomy was placenta praevia, since 45% patient had huge antepartum and postpartum haemorrhage because of it. The second commonest one was ruptured uterus (25%). This data can be correlated with the previous history of caesarean section since all uterine ruptured cases were multiparous and had the previous history of caesarean section. The third common indication was post-partum haemorrhage (15%), two-third of it was primary; one-third secondary. Two patients experienced obstructed labour, which resulted in birth canal injury, followed by severe haemorrhage. Rest of the indications are described in Table III.

Table III: Indications of Emergency Peripartum Hysterectomy

Indications	Number	Percentage
Placenta Praevia	18	45
Ruptured Uterus	10	25
Post-Partum Haemorrhage	6	15
Abruptio Placenta	3	7.5
Puerperal Sepsis	1	2.5
Fibroid Uterus (Gynae)	1	2.5
Morbid Adherent Placenta	1	2.5

Some patients had caesarean section and then developed post-partum haemorrhage, thereafter surgeons performed hysterectomy. Previous caesarean sections, abnormal placentation, obstructed labour, prolonged labour, transverse lie and severe preeclampsia were the indications of caesarean section. Placental abnormalities were in 22 patients, out of 40, which are numbered in Table IV. However, the commonest types of placenta praevia were Type III and Central, which invariably had history of previous caesarean section. However, the commonest types of placenta praevia were Type III and Central, which invariably had history of previous caesarean section.

Table IV: Reported Placental Abnormalities.

Types of Abnormal Placenta	Number	Percentage
Placenta Praevia		
Type I	2	9.09
Type II (anterior)	3	13.63
Type II (posterior)	1	4.54
Type III	5	22.72
Type IV	7	31.81
Abruptio Placenta	3	13.63
Morbid adherent placenta	1	4.54
Total	22	100

After the emergency peripartum hysterectomy, some patients developed complications. The most common complication was lower urinary tract (mainly bladder) injury. Sometimes one patient developed multiple complications. All complications are described in Table V. Among the delivered babies, 24 were alive and 16 were dead. Most of the dead babies had the history of maternal ruptured uterus and abruptio placenta.

Table V: Complications after Emergency Peripartum Hysterectomy.

Complication	Number	Percentage (out of 40)
Urinary Retention	2	5
Renal Failure	2	5
Maternal Death	4	10
Urinary Bladder Injury	8	20
Disseminated Intravascular Coagulation (DIC)	2	5
Fever	4	10
Infection or sepsis	2	5

All of the patients underwent Total Abdominal Hysterectomy (TAH), irrespective of indications. All the bladder injuries were repaired during the operative procedure. Among the 40 reported cases, the maternal death rate was 10%. One mother expired after developing acute renal failure, probably due to massive haemorrhage. Disseminated Intravascular Coagulation (DIC) caused another maternal death. One patient died of acute renal failure, following DIC, following huge bleeding. One hypertensive eclamptic patient developed HELLP syndrome and expired after the operation.

Discussion:

The trends of obstetric practice have changed in different regions of the world. Similarly, the indications of peripartum hysterectomy are well distinguished between the modern world and the developing world. In the developing world, uterine rupture is the most common indication of EPH, while in the developed world, placenta praevia and morbid adherent placenta are more common^{2,7,9-19}. However, this study found abnormal placentation was the most prevalent cause, where uterine rupture was the second commonest one. Supportively, the literature states that uterine atony as an indication of EPH dropped from 42% to 29.2% and abnormal placentation increased from 25.6% to 41.7% in the recent decades. This phenomenon might be associated with improved management of uterine atony and the higher rate of caesarean deliveries³. Moreover, studies confirmed that previous CS is a vital risk factor

for abnormal placentation^{18,20}. Since the incidence of caesarean section is increasing in the developing countries, it raises the number of previous CS, thereby increasing the rate of abnormal placentation¹⁹. Even more, the complicated case with the combination of placenta praevia, previous caesarean history, and morbid adherent placenta, which mandates urgent caesarean hysterectomy, was found in this study and is supported by previous studies²⁰⁻²².

All the cases underwent Total Abdominal Hysterectomy (TAH) in this study. Previously, Subtotal Abdominal Hysterectomy (SAH) was the classic choice to combat indications of EPH^{7,23}. Because TAH requires more skill and expertise than SAH^{23,24}. In fact, there is no observed difference between SAH and TAH considering mortality, blood transfusions, and operative time²⁵. But, regarding SAH, there are potentials of bad prognosis, future haemorrhage, and infection. Even there is a higher chance of vaginal infection and carcinoma cervix following SAH in the developing countries^{7,8}. So, as the trend has changed and surgeons have become more skilled, the total hysterectomy is now more preferred. This fact is also endorsed by the literature^{3,8}.

The previous observations depict that there are higher rates of maternal mortality and morbidity following emergency hysterectomy^{10,26}. The highest maternal morbidity in this study, was 20%. But a previous study in Pakistan found the rate as 16.5%³. Significantly, the commonest complications, in this series, were urinary bladder injury, fever due to infection, urinary retention and renal failure which support the data of some previous studies^{3,27-29}. Even lower urinary tract injuries can occur in TAH despite being performed by high-skilled gynaecological surgeons, a former study confirms¹⁸.

In this study, the maternal death rate was 10%. The observed rate is about the same of the developing countries like Pakistan, less than the undeveloped countries like Ghana and Nigeria, but much higher than the modern countries^{3,7,8,10,12,13,26,30,31}. Notably, the deaths were the outcome of severe uncontrolled haemorrhage, followed by renal failure and DIC. As well, DIC can occur due to delayed hysterectomy¹⁸. In contrast, survival of the rest 90% endorsed high skilled technique, massive transfusion, and monitored anaesthesia. The perinatal death rate, in this study, was found 40%, which was most likely due to uterine rupture; few due to abruptio placenta. This rate is much lower than some previous studies in Pakistan and Saudi Arabia^{3,32}.

Overall, the incidence of EPH in the obstetric practice is extremely rare, mostly less than 1%, as reported in many articles.^{2,7,11,14-16,18,20,33-35}. Markedly, the incidence rate of EPH is even lower in the developed world, since Saudi Arabia has 1/2559; America and Europe 1/2000; United Kingdom 1/2500; Canada 1/2000.^{7,11} However, the timed definition of EPH changes among studies. Though this study considered the time up to 2 weeks after the delivery, due to more risk of secondary haemorrhage, the interval changes in other studies. EPH is variably considered within 24 hours; within 24-72 hours; within 30 days; up to 6 weeks²⁰. So, the incidence rates are particularly incomparable. Interestingly, most of the women who underwent EPH in this study were more than 32 years of age and multiparous. Likewise, previous studies support the higher rate of EPH in older multiparous women^{11,16,18,36-40}. The literature suggests maximum women having EPH cannot complete their gestational age, mainly due to antepartum haemorrhage, uterine rupture and other caesarean indications, which is also seen in this series. So, delivered alive babies might also need neonatal intensive care¹⁸.

Conclusion:

Emergency peripartum hysterectomy is commonly indicated for abnormal placentation and uterine rupture. It has a strong association with previous caesarean section, older age, and multi-parity. However, the total hysterectomy is more justified and preferred now a days because of increasing complications of the subtotal. During the operation, urinary bladder injury is common, which can be avoided by skill, or can be repaired in the same setting. Later, the most attributed cause of maternal death is acute renal failure and disseminated intravascular coagulation, which is possible to avoid by the early management of severe haemorrhage.

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