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Original Research Article

Incidence and indications of peripartum hysterectomy among patients admitted in Dhaka medical college hospital

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ABSTRACT

Background: Peripartum hysterectomy is a mutilating surgery in obstetrics. Peripartum hysterectomy remains one of the important procedures to reduce maternal mortality and morbidity in Bangladsh. The study aimed to determine the incidences of peripartum hysterectomy in patients admitted to Dhaka medical college hospital (DMCH) by thorough evaluation of cases.
Methods: This was a cross-sectional clinical study carried out in the department of obstetrics and gynaecology, DMCH. The duration of the study was one year, from July 2008 to June 2009. About 42 patients with peripartum hysterectomy took part in it. All patients who underwent peripartum hysterectomy with no other chronic illness, matched with age criteria, and gave consent were among the inclusion criteria. Data were collected and analyzed with the software SPSS.
Results: Incidence of 6.25 per 1000 deliveries. Majority age group 29-34 years (38.09%). P/V bleeding with shock (23.81%), P/V bleeding without shock (35.71%), term pregnancy with labor pain (21.43%), and ruptured uterus (19.05%). The primary indication was uterine rupture (57.14%), followed by postpartum hemorrhage (26.19%) and sepsis (4.76%). Subtotal hysterectomy was performed in 88.09% of cases. Intraoperative complications included severe hemorrhage (23.81%) and urinary bladder injury (14.28%). Postoperative complications included febrile morbidity (42.85%), wound infection (23.81%), and paralytic ileus (28.57%). Maternal mortality was 16.67%, and perinatal outcomes included 61.9% stillbirths, 9.52% early perinatal deaths, 4.76% requiring ICU support, and 28.57% alive.
Conclusions: Through effective antenatal care, reduced primary cesarean section rate, identification of patients at risk, enhancement of blood transfusion facilities, together with improvement of surgical skills the morbidity associated with the operation and mortality rate can be reduced.

Keywords: Peripartum hysterectomy, Hysterectomy, Ruptured uterus, Uterine atony

INTRODUCTION

The sensitive indicator of the health care delivery system of a country as a whole or in part is reflected by its maternal and perinatal mortality rates. The maternal mortality ratio (MMR) varies from 4-40 per 100,000 live births in developed countries. Bangladesh is one of the developing countries where maternal mortality and morbidity are considerably high. Peripartum hysterectomy is a mutilating surgery in obstetrics which is not acceptable to both the mother and obstetrician. However, sometimes the obstetrician performs this procedure as a life-saving measure. Considering the high number of maternal deaths in developing countries, the WHO conceived the idea of the "safe motherhood initiative" in 1987. Among maternal deaths, 75% are due to direct obstetric causes.[1] Bangladesh is one of the developing countries where maternal mortality and morbidity are considerably high. Peripartum hysterectomy is a mutilating surgery in obstetrics which is not acceptable to both the mother and obstetrician. However, sometimes the obstetrician performs this procedure as a life-saving measure. Emergency peripartum

hysterectomy is a life-saving procedure to minimize maternal mortality.[2] Although the operation is referred to as "caesarean hysterectomy", peripartum or obstetric hysterectomy is a better terminology.[3] In modern obstetrics, the overall incidence is 0.05%, but there is a considerable difference in its incidence in different parts of the world depending upon modern obstetrical services, standards, and awareness of antenatal care and the effectiveness of family planning activities of a given community.[4] In Nigeria, the incidence is 1 in 349 and 1.3 per 1000 births in South California.[5,6] The majority of hysterectomies are done for hemorrhage. Although uterotonic drugs help to control atony, intractable and unresponsive cases require surgical treatment.[7] Most reports from developed countries quote the incidence of atony amongst women requiring emergency hysterectomy to be in the range of 20%.[8] The second most common indication is a ruptured uterus with an overall incidence of 0.05%. It increases to 0.8% after a previous lower segment caesarean section and 5% after a classical section.[9,10] It is responsible for 5% of maternal deaths in the United States each year.[11] However, the incidence in Western countries is reducing. A recent study shows placenta accreta as one of the primary indications.[12,13] Uterine inversion is rare, occurring in 1:6400 to 1:2100 deliveries.[14,15] Sepsis is another reason as well. Emergency peripartum hysterectomy increases maternal mortality and morbidity. Indications of peripartum hysterectomy include ruptured uterus, uterine atony, abnormally adherent placenta, placenta praevia, and sepsis.[16] The most frequent operative complications are hemorrhage and urinary tract injuries. A common cause of preoperative hemorrhage is the loss of control of the uterine artery or adnexal vascular pedicle. The most common postoperative complications are bleeding and infection. Effective antenatal care, identification of patients at risk, enhancement of blood transfusion facilities, together with the improvement of surgical skills, are necessary to reduce the morbidity associated with the operation. Attempts to reduce the primary caesarean section rate should be beneficial for reducing the relative risk of hysterectomy. Bangladesh is one of the developing countries where rupture of the uterus and uterine atony are common causes of peripartum hysterectomy. Though the incidence of ruptured uterus with obstructed labor was common in the past, the incidence of scar rupture and abnormally adherent placenta has become common in recent years. Indications for emergency peripartum hysterectomy are less common than previously, as there are now alternate treatments available (0.01-0.05%).[6] Medical and possibly surgical alternatives should be tried. DMCH is one of the tertiary referral and teaching hospitals situated in the center of the capital city. Complicated patients from urban and peri-urban hospitals and clinics are referred to this hospital every day. This is also a training institute for undergraduate and postgraduate students. Therefore, DMCH was a suitable place to identify the women at risk for advanced treatment before reaching hysterectomy. Peripartum hysterectomy requires judicious decision-making, surgical expertise, and is associated with severe mortality and morbidity. In this study, cases of peripartum hysterectomy were critically evaluated during the study period to identify risk situations. After analyzing risk factors contributing to peripartum hysterectomy, recommendations will be formulated on how to prevent these risk factors and take due precautions to prevent these complications.

METHODS

This cross-sectional clinical study intended to analyze data on peripartum hysterectomy. The study was carried out in the department of obstetrics and gynaecology, DMCH, a tertiary referral teaching hospital situated in the center of the capital city. There were 42 cases of peripartum hysterectomy, and the overall incidence was 6.31 per 1000 deliveries. The duration of the study was one year, from July 2008 to June 2009. All patients who underwent peripartum hysterectomy with no other chronic illness, matched with age criteria, and gave consent were included in the study. Those who had chronic illness along with peripartum hysterectomy and provided incomplete information in the data collection form were excluded from the study. All necessary information was collected from previous records in the record room. A data collection form was first designed, and approval for the study was obtained from the authority of the Bangladesh college of physicians and surgeons. The patients' files were searched from all records of Ward 15 and Ward 18. Necessary information was then extracted from the case sheets and recorded in a pre-designed data collection form. Finally, the findings were compiled, and necessary statistical analyses were done using the software SPSS.

RESULTS

The incidence of peripartum hysterectomy varies in different parts of the world due to various factors. In our study 6,700 deliveries during the last year of the study period (July 2008-June, 2009). There were 42 emergency peripartum hysterectomies performed. The incidence of peripartum hysterectomy in this study was 6.25 per 1000 deliveries.

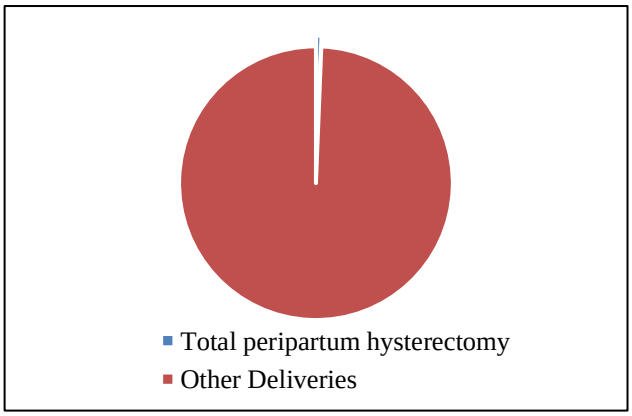

Figure 1: Incidence of peripartum hysterectomy, (n=42).

Table 1: Distribution of study patients upon baseline characteristics.

Variables	N	Percentage (%)
Age group (in years)		
18-22	13	30.95
23-28	7	16.67
29-34	16	38.09
35-40	6	14.29
Parity		
00-03	13	30.95
04-06	24	57.15
07-09	5	11.9
Mode of presentation		
Ruptured uterus	8	19.05
P/V bleeding with shock	10	23.81
P/V bleeding without shock	15	35.71
Full-term pregnancy with labor pain	9	21.43

The commonest age group involved in peripartum hysterectomy was 29-34 years (38.09%). 16 cases were in this group. Mean parity=4.08. The patients presented variously; 10 patients (23.81%) presented with P/V bleeding with features of shock. 15 (35.71%) cases presented with P/V bleeding without any features of shock. There were 9 (21.43%) cases who presented as term pregnancy with labor pain. 8 cases (19.05%) presented with features of a ruptured uterus.

Table 2: Indications of peripartum hysterectomy, (n=42).

Indications	N	Percentage (%)
Ruptured uterus (n=24)		
Obstructed labour	19	45.24
Scar rupture	5	11.9
PPH (n=16)		
Uterine atony	11	28.57
Placenta praevia	2	4.76
Morbid adhesion of placenta	2	4.76
Others	1	0.0
Sepsis (n=2)		

Table 2 shows the main indication of emergency peripartum hysterectomy in this study. The most common indication was a ruptured uterus (24 cases) which was due to obstructed labour in 19 cases and scar rupture in 5 cases. The second common indication was PPH. Among them 11 cases due to uterine atony, 2 cases due to placenta praevia, 2 cases due to morbid adhesion of placenta, and one other case. 2cases of hysterectomy were performed due to sepsis.

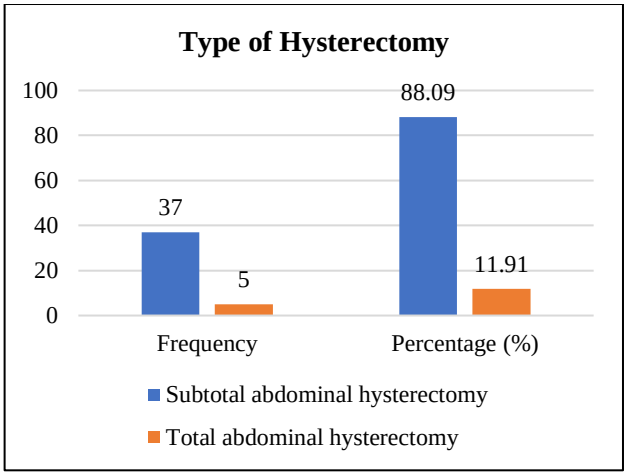

Figure 2: Type of hysterectomy, (n=42).

Among the participants, subtotal hysterectomy was done in 88.09% of cases whereas total abdominal hysterectomy in 11.91% of cases

Table 3: Complications of peripartum hysterectomy.

Complications	N	Percentage (%)
Intraoperative complications		
Severe hemorrhage	10	23.81
Urinary bladder injury	6	14.28
Intestinal injury	1	2.38
Postoperative complications		
Febrile morbidity	18	42.85
Wound infection	10	23.81
Wound dehiscence	5	11.9
Pelvic peritonitis	6	14.28
Paralytic ileus	12	28.57
UTI	5	11.9
Vesicovaginal fistula	3	7.14
DIC	1	2.38
Acute renal failure	2	4.76
ARDS	1	2.38

* More than one complication developed in some patients.

Intraoperative complications included severe hemorrhage (23.81%), urinary bladder injury (14.28%), and intestinal injury (2.38%). Postoperative complications were febrile morbidity (42.85%), wound infection (23.81%), wound dehiscence (11.9%), pelvic peritonitis (14.28%), paralytic ileus (28.57%), urinary tract infection (UTI) (11.9%), vesico-vaginal fistula (7.14%), disseminated intravascular coagulation (DIC) (2.38%), acute renal failure (4.76%), and acute respiratory distress syndrome (ARDS) (2.38%). Multiple complications developed in some patients.

Maternal mortality was observed in cases of ruptured uterus (2.38%), postpartum hemorrhage (9.52%), sepsis (4.76%), and indications for relaparotomy (7.14%). Notably, 83.33% of patients experienced no complications. Regarding perinatal outcomes, 61.9% of

the infants were stillborn, 9.52% experienced early perinatal death, 4.76% required ICU support, and 28.57% were alive.

Table 4: Maternal and Perinatal outcome, (n=42).

Outcome	N	Percentage (%)
Maternal mortality		
Ruptured uterus	1	2.38
Postpartum hemorrhage	4	9.52
Sepsis	2	4.76
Indications of relaparotomy	3	7.14
No Complications	35	83.33
Perinatal outcome		
Stillborn	26	61.9
Early perinatal death	4	9.52
Needed ICU support	2	4.76
Alive	12	28.57

DISCUSSION

This study conducted at DMCH involved 42 cases of peripartum hysterectomy, with an overall incidence of 6.31 per 1000 deliveries. This rate is higher than those reported by other institutions in various countries. Modern obstetrics records an overall incidence of 0.05% (0.5/1000 deliveries).[4] In Nigeria, the incidence is 1 in 349 (2.87/1000 deliveries), and in Southern California, it is 1.3/1000 deliveries.[5,6] In 1999, S. Rouf et al conducted a study in this hospital, reporting an incidence of 6.63/1000 deliveries, which is higher than the present study's incidence.[17] This study found that the incidence of peripartum hysterectomy was higher in the fourth decade of life, with a mean age of 27.57 years. Alsayali et al reported an age incidence of 68% in the fourth decade.[18] Tahir et al found a mean age of 31 years, with a peak incidence of 46.66% in the 33-37 age group.[19] Rouf et al in their study at the same hospital, reported a mean age of 30.28 years.[17] The incidence is higher in older age groups and in multiparous women, who may be at higher risk of uterine rupture and uterine atony. In this study, the median parity was 4.08, with a range of 0-9. Rouf et al found a median parity of 2, with a range of 0-7, in their 1999 study at this hospital. However, Tahir et al reported a mean parity of 7.00, with a range of 0-14.[17,19] Patients who underwent peripartum hysterectomy in this study presented with P/V bleeding, with or without shock, ruptured uterus, and features of full-term pregnancy with labor pain. In the current study, 23.81% of patients presented with shock. Morbidity and mortality were higher among patients who required immediate resuscitative measures. Among these patients, uterine rupture was the most common indication for peripartum hysterectomy (57.14%), followed by atonic PPH (28.57%). Other causes included placenta praevia (4.76%) and sepsis (4.76%). In a 1999 study conducted by Rouf et al at DMCH, uterine rupture from obstructed labor was the most common indication for peripartum hysterectomy (66.13%). Recently, scar rupture has become more common but is often repairable. Clark et al reported that the incidence of placenta praevia increases from 0.5% in the general population to 3.9% after one cesarean section and up to 10% after four cesarean sections.[20] Abnormal placentation as a primary indication is related to the increasing incidence of cesarean sections. Studies from developed countries show that peripartum hysterectomies for uterine rupture are mainly due to scar rupture. Farmer et al reported an incidence of uterine rupture of 0.08% in patients with a prior cesarean delivery undergoing a trial of labor, with similar observations in other studies.[21-23] In this series, 23.57% of peripartum hysterectomies were performed to manage postpartum hemorrhage due to uterine atony, the second most common cause of peripartum hysterectomy. The incidence of peripartum hysterectomy due to this cause varies in different countries. Studies by Tahir et al and Giwa-Osagie et al demonstrated that PPH is the second most common cause of peripartum hysterectomy, consistent with findings from Rouf's study at this institution.[24] However, Sturdee and Rushton reported an incidence of 14.29%, and RGN Thonet reported 13.63%.[25] There is a decreasing proportion of hysterectomies for uterine atony compared to past studies from developed countries. In this study, two cases of peripartum hysterectomy were performed for placenta praevia, with an institutional incidence of 4.76%. The incidence is higher in developed countries compared to our country.[16,18,24,25] The rising contribution of placenta praevia and morbidly adherent placenta to peripartum hysterectomy is likely related to the global increase in cesarean section rates. The number of cesarean sections performed at the tertiary referral center in our country has also shown a rising trend.[26] Giwa-Osagie et al reported that 3.28% of peripartum hysterectomies were performed for sepsis. Another hospital study found that sepsis contributed 6.45% of peripartum hysterectomies.[17] In this study, 4.76% of peripartum hysterectomies were due to sepsis.[24] This study found that 88.09% of hysterectomies were subtotal and 11.92% were total. In Pakistan, Tahir et al reported 83.33% of total hysterectomies and 16.67% of subtotal hysterectomies. Total hysterectomy is preferred in cases of ruptured uterus with extension. Morbidity is much higher in emergency hysterectomies. Tahir's study in Pakistan reported a morbidity rate of 58%, which is much higher than other studies, with an overall range of 30-40%. In the present study, important causes of higher morbidity included blood loss (23.81%), febrile illness (42.85%), and sepsis. Other causes included wound infection (10 cases), bladder injury during surgery (6 cases), vesicovaginal fistula (3 cases), DIC (1 case), renal failure (2 cases), etc. Overall morbidity was almost the same as reported in a previous local study at this hospital in 1999.[17] In the present series, maternal mortality was 16.67%, in contrast to studies by Sturdee and Rushton and Thonet, which reported no maternal deaths.[16,25] Maternal mortality rates due to peripartum hysterectomy vary in different series, with relatively higher rates in developing countries.[24,25] Recent studies by Rouf in Bangladesh and Tahir in Pakistan reported maternal mortality rates of 17.74% and

6.66%, respectively.[17,19] This reflects the higher rate of maternal death in developing countries. The maternal mortality rate in this series was almost the same as in the previous local study at this hospital.[17] Out of 14 cases where peripartum hysterectomy was performed for the management of postpartum hemorrhage, 8 patients died, contributing 57.14% of total case fatality. This figure is higher than the case fatality due to uterine rupture. This indicates that although hysterectomy is often performed as a life-saving procedure, patient recovery depends not only on the judicious and timely decision but also on various other factors, including massive hemorrhage with shock, septicemia, DIC, and renal failure.

Limitations

Limitation of the study was its small sample size and study was done in a single center which is a tertiary referral centre.

CONCLUSION

The emergency peripartum hysterectomy remains an essential lifesaving procedure and continues to have a high incidence in our community. The decision to perform an emergency peripartum hysterectomy is usually difficult because of the obstetrician's paramount wish to preserve the uterus for future childbearing. High parity, illiteracy, and ignorance coupled with inadequate maternity services, injudicious use of oxytocin, expectant management of the third stage of labor abnormal placentation, and uterine atony were identified as risk factors for peripartum hysterectomy. It can be concluded that with effective antenatal care, reduced primary cesarean section rate, identification of patients at risk, enhancement of blood transfusion facilities, together with improvement of surgical skills the morbidity associated with the operation and mortality rate can be reduced.

Recommendations

A prospective study with a longer duration is recommended. Effective antenatal care and identification of the patients at risk should be adequate in all maternity centers. I C U facilities, blood transfusion facilities, and transport facilities should be enhanced. Above all, poverty eradication, health education, and community awareness are the fundamental areas to be targeted to reduce the peripartum hysterectomy.

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