Emergency Peripartum Hysterectomy: 16-year Experience of a Medical Hospital

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Background: We conducted this retrospective study to evaluate the outcomes and indications of emergency peripartum hysterectomy (EPH) as a life-saving procedure.

Methods: We analyzed a series of 140 cases of EPH, between January 1993 and December 2008 in our clinic, retrospectively. The data were collected from the patients' files. The incidence, demographic characteristics, risk factors, indications and outcomes of hysterectomy, peripartum complications, the operation types, maternal morbidity and mortality and fetal mortality were evaluated.

Results: A total of 26,015 of women were delivered. The incidence of EPH was 5.38 per 1,000 deliveries. The mean age was 34.19 ± 6.04 years (range, 21–49 years), gravidity was 6.84 ± 3.38 (1–17) and parity was 5.58 ± 3.04 (0–15). Of the 140 cases, 90 were delivered by cesarean section [29 (20.71%) of these had had a previous cesarean section] and 50 were vaginally delivered. One hundred and five cases had subtotal hysterectomy and 35 had total abdominal hysterectomy. The most common indications for EPH were uterine atony followed by uterine rupture and abnormal placentation. Mean operation time was 142.23 ± 43.70 minutes. The average blood transfusion was 4.79 ± 3.36 (1–14) units. Relaparotomy was performed in 23 cases. Maternal mortality was seen in 13 cases. Seventy-nine of the cases delivered at an outside center and were referred to our clinic for the intensive care unit. Sixty-one of the cases delivered at our clinic and 31 had stillbirths.

Conclusion: This study suggests that the most common indications for EPH are uterine atony, uterine rupture and abnormal placentation. This is probably due to the advanced age of pregnancies and multiparity in our region. Therefore, we believe that the risk of EPH may be decreased with appropriate and closer prenatal care as well as education of the pregnant women. [*J Chin Med Assoc* 2010;73(7):360–363]

Key Words: emergencies, hysterectomy, indications, outcomes, peripartum

Introduction

Emergency peripartum hysterectomy (EPH) is often performed for life-threatening obstetric conditions. It is defined as hysterectomy, performed after cesarean delivery or in the immediate postpartum period. However, EPH may also be performed when a conservative treatment approach fails to arrest post-delivery bleeding. In modern obstetrics, the overall incidence is 0.05%,[1] but there are considerable differences in incidence in different parts of the world depending on modern obstetric services, standards and awareness of antenatal care, and the effectiveness of family planning activities of a given community. Whiteman et al[2] reported the incidence in their study as 0.77 per 1,000 births, and Francois et al[3] found the incidence to be 2.28 per 1,000 births. Umezurike et al[4] found that the incidence of EPH was 5.4 per 1,000 deliveries in Aba, southeastern Nigeria. Obstetric hemorrhage continues to be the primary cause of maternal mortality and morbidity in developing countries, and the most challenging complication that a clinician will face. In addition, obstetric hemorrhage is a major health problem and contributes to 25% of direct maternal deaths.[5,6] Indications for peripartum hysterectomy have changed throughout the years. In earlier reports,[7,8]

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the major indications for EPH were uterine rupture and atony, but Sheiner et al[9] listed placenta accreta as the leading cause of peripartum hysterectomy because of a higher rate of cesarean sections and repeat cesarean section rates, with repeat cesarean being associated with higher rates of accreta.

In this study, we evaluated the incidence, risk factors, indications, outcomes, mortalities and complications of EPH cases in our university hospital.

Methods

We retrospectively analyzed a series of 140 cases of EPH between January 1993 and December 2008 at Dicle University. The data were collected from the patients' files. Mean maternal age, gravidity, parity, gestational age, types of delivery, the incidence, risk factors, indications and outcomes of EPH were determined. Peripartum maternal and fetal complications such as fetal mortality and causes of maternal mortality were evaluated. The surgical procedures, type of anesthesia and hysterectomy, complications, the operative complications, operation time, preoperative and postoperative hemoglobin and hematocrit levels, amount of blood transfused and the length of stay (days) at the hospital were evaluated.

Elective hysterectomies performed for an associated gynecologic condition were excluded from this study (2 cases for malignant conditions). The main complications included massive hemorrhage, infection, uterine atony, uterine rupture, abnormal placentation, placental abruption, disseminated intravascular coagulopathy, pelviperitonitis and bacterial sepsis. In addition, multiple reoperations, readmissions, maternal and fetal mortality and morbidity were determined.

The mean and standard deviation were calculated for continuous variables. Independent-sample t tests evaluated associations between the categorical and continuous variables. Two-sided p values were considered statistically significant at $p < 0.05$. Statistical analyses were carried out using the statistical package SPSS version 15.0 (SPSS Inc., Chicago, IL, USA) for Windows.

Results

During a 16-year period, a total of 26,015 of women delivered in our clinic; 13,868 (53.30%) of them delivered vaginally and 12,147 (46.69%) by cesarean section. EPH was performed in a series of 140 cases. The incidence was 5.38 per 1,000 deliveries. The mean age of cases that underwent EPH was 34.19 ± 6.04 years (range, 21–49 years), gravidity was 6.84 ± 3.38 (1–17) and parity was 5.58 ± 3.04 (0–15). Hysterectomies were performed in 50 (35.71%) cases after vaginal birth and 90 (64.28%) cases during cesarean section and relaparotomy due to massive obstetrics hemorrhage. Primary cesarean section was found in 51 (36.42%) cases and previous cesarean section (second or more) in 29 (20.71%) cases. Subtotal hysterectomy was performed in 105 (75%) cases and total abdominal hysterectomy in 35 (25%) cases. Unilateral salpingo-oophorectomy was performed in 9 (6.24%) cases and bilateral in 3 (1.42%) cases. The main causes of EPH were uterine atony (34.28%), uterine rupture (30.71%), abnormal placentation (16.42%), pelvic infection and uterine bleeding secondary to infection (7.85%), placental abruption (5.71%) and 7 others (5%) (Table 1).

Table 1. Indications for emergency peripartum hysterectomy in 140 cases*

Uterine atony	48 (34.28)
Uterine rupture	43 (30.71)
Abnormal placentation	23 (16.42)
Uterine bleeding secondary to pelviperitonitis	11 (7.85)
Abruptio placenta	8 (5.71)
Uterine myoma and bleeding	2 (1.42)
Vesicouterine rupture	2 (1.42)
Uterine inversion	1 (0.71)
Cervical cancer and bleeding	1 (0.71)
Choriocarcinoma and bleeding	1 (0.71)

**Data presented as n (%).*

In the cases who survived, the average preoperative hematocrit and hemoglobin levels were 24.40 ± 7.42% (8–41%) and 8.15 ± 2.61 g/dL (3–14 g/dL), and the postoperative hematocrit and hemoglobin levels were 28.02 ± 4.69% (12–40%) and 9.44 ± 1.79 g/dL (4–27 g/dL). An average of 4.79 ± 3.36 (1–14) units of blood were transfused. Due to intractable hemorrhage, relaparotomy was performed in 23 (16.42%) cases. Despite all efforts, 13 (9.28%) cases died due to massive hemorrhage, except for 1 case of sepsis. Nine of 13 mothers died on the 1st day of birth and their mean age was 32.92 ± 6.63 years (25–47 years). The clinical characteristics and comparison of these cases with living mothers are shown in Table 2.

Seventy-nine of the cases delivered at outside centers or at home and were referred to our clinic in the intensive care unit after massive obstetrics hemorrhage. Sixty-one cases delivered at our clinic and 31 fetuses were stillborn. Thirty newborns had low Apgar scores; the mean 1-minute score was 5.63 ± 2.21 and the mean 5-minute score was 7.18 ± 1.75. The average length of hospitalization was 9.95 ± 7.26 days (2–45 days) in

Table 2. Comparison of the characteristics of cases with and without mortality*

Characteristics	Cases with mortality ($n=13$)	Cases without mortality ($n=127$)	p
Age (yr)	34.53±7.74	34.31±5.31	0.235
Gravidity	6.76±2.89	6.79±3.30	0.978
Indication			0.193
Uterine atony	8	26	
Pelviperitonitis	1	1	
Abruptio placenta	3	4	
Abnormal placentation	1	8	
Type of operation			0.978
Total hysterectomy	3	60	
Subtotal hysterectomy	10	67	
Blood product transfusion (units)	3.69±3.56	3.85±3.12	0.882

**Data presented as mean±standard deviation or n.*

Table 3. Postoperative morbidities of 65 cases*

Relaparotomy (hemorrhage and others)	23 (16.42)
Postoperative febrile reaction	11 (7.85)
Dehiscence and wound infection	11 (7.85)
Acute renal failure	4 (2.85)
Bladder injury	4 (2.85)
Ureter injury	3 (2.14)
ARDS and DIC	3 (2.14)
Others	6 (0.42)

**Data presented as n (%). ARDS=acute respiratory distress syndrome; DIC=disseminated intravascular coagulation; others=ileus, foreign body, necrotizing fasciitis, cardiac aneurysm rupture, intracranial hemorrhage, and sepsis.*

surviving cases and 31.50±62.67 days (1–240 days) in cases who died. The most common causes of maternal morbidity included relaparotomy, postoperative febrile reaction and wound problems (Table 3). Table 4 summarizes the clinical characteristics of these cases and compares them with the cases without morbidity.

Discussion

EPH is a life-saving procedure when other measures do not succeed in halting peripartum bleeding.[5] The incidence of EPH has declined recently and the indications have been restricted to emergent situations. The incidence of peripartum hysterectomy in the USA is 1–3 per 1,000 deliveries,[2] but some studies from other countries have reported remarkably lower rates than the USA, such as in Norway where there was an incidence of 0.2 per 1,000 deliveries over a 25-year span.[9] The incidence of EPH varies from 0.41 to 1.55 per 1,000 deliveries in previous reports.[10,11] In our study, the overall incidence of EPH was 5.38 per 1,000 deliveries, and this incidence is higher than that in the literature.

Tahir et al[12] reported 30 EPH cases, including 2 mothers who died and 2 cases who underwent a repeat laparotomy. In our study, 13 (9.28%) women died due to preventable causes. This only represents approximately 50 per 100,000 maternal mortalities, but maternal mortality in our hospital does not just consist of the cases in this study. Furthermore, 23 (16.42%) cases underwent relaparotomy due to intractable bleeding and insufficient previous operations performed at outside centers. These situations indicate that we have an unfavorable health system in our region. Umezurike et al[4] found that the incidence of EPH was 5.4 per 1,000 deliveries in Aba, southeastern Nigeria. This incidence is similar to ours.

Indications for peripartum hysterectomy have also evolved in response to the advent of improved antibiotic treatments, blood-banking techniques, and uterotonic agents. Although uncontrollable hemorrhage and infection were once considered the principal risk factors, abnormal placentation is currently thought to be the major risk factor for peripartum hysterectomy.[11] In our study, the most common indications of EPH were uterine atony, uterine rupture, abnormal placentation, and pelviperitonitis.

Numerous causes might have contributed to our high incidence of hysterectomies, such as lower socioeconomic status, lower income, poverty, lower standards of health care, high parity, religious and traditional habits, delay in arriving at hospital, and the long-running civil war in our region. In addition, our hospital is

Table 4. Comparison of the characteristics of cases with and without postoperative morbidity*

Characteristics	Cases with morbidity ($n=65$)	Cases without morbidity ($n=75$)	p
Age (yr)	33.25 ± 5.75	35.09 ± 6.12	0.075
Gravidity	6.72 ± 3.37	6.84 ± 3.18	0.834
Parity	5.75 ± 3.16	5.47 ± 2.71	0.574
Type of hysterectomy			0.245
Subtotal hysterectomy	28	39	
Total hysterectomy	37	36	
Blood product transfusion (units)	4.25 ± 4.11	3.53 ± 3.61	0.273

**Data presented as mean ± standard deviation or n.*

a tertiary and reference center, and therefore, many cases with complications are referred to our hospital. Unless these tragic problems are resolved with the aid of the government, we believe that the incidence will not decrease.

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