

Emergency obstetric hysterectomy: a review of 69 cases

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Objective

To determine the frequency, indications, types and outcomes of emergency obstetric hysterectomy.

Method

This retrospective review was undertaken in the Department of obstetrics and Gynecology Unit III of Civil Hospital Karachi from July 2002 to December 2007. Data regarding frequency of hysterectomy, maternal age, parity, causes of hemorrhage, type of hysterectomy and its complications, was retrieved from yearly maintained Registers / proformas of obstetrical hysterectomy and analyzed by computer software, SPSS version 13.

Results

Total number of deliveries during the study period was 10,127 and 69 emergency obstetric hysterectomies were undertaken; frequency being 0.68% (1 in 150 deliveries). Only 16% of women were booked. The three most common

causes were ruptured uterus in 24 women (35%), uterine atony in 16 women (23%) and morbidly adherent placenta in 14 women (20%). Total hysterectomy was undertaken in 65% of women and subtotal in 35%. Thirteen women died; with mortality of 19%. Morbidity related to type of hysterectomy was not significantly different except for risk of salpingo-oophorectomy (20% for total compared to 12.5% for subtotal)

Conclusions

Emergency obstetric hysterectomy, although a frequent life saving operation, was associated with significant maternal mortality, mostly due to the effects of massive hemorrhage. The most frequent indication was ruptured uterus followed by uterine atony and morbidly adherent placenta. (Rawal Med J 2009; 34: 75-78).

Keywords

Emergency obstetric hysterectomy, Peripartum hysterectomy, postpartum hemorrhage.

INTRODUCTION

Postpartum hemorrhage (PPH), according to WHO, causes 25% of maternal deaths.¹ In Pakistan, hemorrhage is the most common cause of maternal mortality.^{2,3} Emergency obstetrical hysterectomy (EOH) is usually undertaken for life threatening obstetric hemorrhage and is therefore considered as a 'near miss' event.⁴ The four main causes of PPH which may require EOH are related to "4 Ts" that is tone (uterine atony), tissue (retained placenta including morbidly adherent placenta), trauma (cervical, vaginal and uterine tears) and thrombosis (disorders of coagulation e.g. placental abruption, HELLP syndrome, intrauterine fetal demise or amniotic fluid embolism).¹ In Pakistan, ruptured uterus has been reported to be the most common cause of PPH requiring emergency obstetric hysterectomy^{5,6} whereas in the developed countries, uterine atony and morbidly adherent placenta seem

to be the more common indications.⁴ The aim of this study was to describe the frequency, indications, types and maternal outcome of emergency obstetric hysterectomy.

METHOD

This retrospective study was undertaken from July 2002 to December 2007 in the Department of Obstetrics and Gynecology Unit III at Civil Hospital Karachi (CHK). All emergency obstetric hysterectomies done for primary or secondary PPH were included in the study. Hysterectomies done for early pregnancy complications, like perforated uterus due to induced abortion, were excluded. Data regarding frequency of EOH, maternal age, parity, booking status, indications for hysterectomy, type of hysterectomy done and its complications, was retrieved from the yearly maintained Registers / proformas for obstetric hysterectomy for the years

2002 to 2007. Booking was defined as patients booked for delivery in any unit of CHK. Data was analyzed by computer software SPSS version 13.

RESULTS

Total number of deliveries during this period was 10,127 and 69 EOH were carried out giving a frequency of 0.68% or 1 in 150 deliveries. All hysterectomies were done for primary PPH except two cases which were done for secondary PPH.

Table 1. Patient characteristics. Values are given as n (%)

| Age (years) | Number (%) |
|----------------------------|--------------------|
| 15 - 24 | 7 (10) |
| 25 - 29 | 9 (13) |
| 30 - 34 | 29 (42) |
| ≥ 35 | 24 (35) |
| Parity | |
| 0 | 6 (9) |
| 1 - 2 | 12 (17) |
| 3 - 4 | 24 (35) |
| ≥ 5 | 27 (39) |
| Hemoglobin (grams/dl) | 6.8 (range 2-13.1) |
| Intensive care stay (days) | 1 {range 1-13} |
| Hospital stay | 7 {range 1-17} |

Only 16% of the patients were booked in CHK. The mean age of patients undergoing EOH was 31±5 years and median parity was 4 (range: 0-10) (Table 1).

The main causes of hemorrhage were ruptured uterus, uterine atony and morbidly adherent placenta (MAP) (Table 2). Eleven patients presented antenatally and in 10 of these, MAP was suspected clinically whereas in 1 patient, it was diagnosed on Doppler ultrasound. In all these 11 women, MAP was confirmed on cesarean section and a cesarean hysterectomy performed. Three women (21.4%) with MAP had had vaginal

deliveries with retained placenta (one of these patients had previous one cesarean section and anterior placenta previa). MAPs were reported as accreta in 2 patients, increta in 4, percreta and partial accreta in 1 patient each. In six patients the type of MAP was not specified. Thirty women (43%) had delivery by cesarean section, eighteen (26%) delivered vaginally and twenty-one (30%) had delivery by laparotomy as the baby was delivered from the abdominal cavity due to ruptured uterus.

Total hysterectomy was undertaken in 45 women (65%) and subtotal in 24 (35%). Majority of subtotal hysterectomies were done for ruptured uterus (54%). For all the other indications total hysterectomy was undertaken more frequently. Thirteen mothers died; a case fatality 19%. Perinatal mortality was 53.6% with thirty-six stillbirths (45%) and one neonatal death. Seventy-four percent of patients were admitted to intensive care for a median of 1 day (range 1-13). Twenty-seven women (39%) developed coagulopathy due to massive hemorrhage. Salpingo-oophorectomy was required in 12 women (17%), in two of whom bilateral salpingo-oophorectomy had to be done due to uncontrolled adnexal hemorrhage. Re-operation was required in five patients (7%) due to continuous intra-abdominal or vaginal hemorrhage post-operatively (Table 3). Other morbidities included temporary neurological deficit in three women (encephalitis, hemi-paresis and weakness of both legs in one patient each), from brain hypoxia due to hypovolemic and septic shock, psychological trauma in one, wound infection in one and vesico-vaginal fistula in two women.

DISCUSSION

The frequency of EOH in our study (0.68%) is slightly higher compared to that reported by another study from Bahawalpur Pakistan (0.4%) but is much lower compared to a study from Peshawar, Pakistan (2.9%).^{6,7} However, it is very high if we compare it with that of developed countries (0.4 per 1000, 0.2 per 1000).^{8,9} Similarly, our very high case fatality rate of 19% is comparable to 17% and 19% reported from other studies from Pakistan^{6,7} but is again very high compared to the developed nations which

report no maternal mortality in their series.^{9,10} These differences in frequency and mortality can be explained by the fact that the majority of our patients were non booked and were admitted in emergency with signs of hypovolemic shock due to massive hemorrhage. Maternal mortality may, therefore, be directly related to the effects of this profound hemorrhage rather than to the procedure itself. This grave scenario arises because of the problems inherent in our country like poverty, illiteracy, lack of antenatal care and lack of access to good quality maternity care services.

Table 2. Causes of hemorrhage in women undergoing emergency obstetric hysterectomy (N=69).

| Cause* | Number of women (%) |
|----------------------------|---------------------|
| Ruptured uterus | 24 (35) |
| Uterine atony | 16 (23) |
| Morbidly adherent placenta | 14 (20) |
| Placental abruption | 6 (9) |
| Placenta previa | 5 (7) |
| Fibroids | 2 (3) |
| Others** | 5 (7) |
| Unknown | 2 (3) |

*includes 5 women with more than one cause of hemorrhage, thus the total exceeds 100%.

**includes one case each of hepatic encephalopathy, uterine infection and extension of uterine incision and two cases of broad ligament hematoma

The most common indication for EOH in our study was ruptured uterus. This has also been reported by other studies from Pakistan.^{5,6,11} However, uterine atony or MAP have been shown to be the most frequent indications by studies from the west.^{4,12,13} The majority of uterine ruptures in our series were caused by injudicious use of syntocinon, which serves to highlight the fact that these women were delivered by untrained birth attendants. The second most common cause for hemorrhage leading to hysterectomy was uterine atony. The main risk factors were pre-eclampsia, twin pregnancy, obstructed labor and having delivery with untrained care providers. Most of these risk factors have been

reported to be significantly associated with atonic PPH.¹⁴

Table 3. Complications and transfusion requirements according to type of hysterectomy

| Complication | Total hysterectomy (n=45) n (%) | Subtotal hysterectomy (n=24) n (%) |
|--|---------------------------------|------------------------------------|
| Salpingo.oophorectomy | 9 (20) | 3 (12.5) |
| Bladder injury | 1 (2) | 1 (4) |
| Re-operation | 3 (7) | 2 (8) |
| Median units of blood Transfused (range) | 6 (range 1-14) | 5 (range 2-24) |

Most of the patients with MAP were booked in our department and, therefore, had elective cesarean deliveries undertaken by consultants. However, two patients presented in emergency with primary PPH due to retained placenta after having vaginal deliveries outside the hospital. Traditionally, hysterectomy has been recommended as the life saving treatment for MAP.¹⁵ The most well known risk factors for MAP are placenta previa and previous cesarean delivery.^{16,17} In our study, majority of patients with MAP were managed with hysterectomy due to massive hemorrhage, without wasting time on trying conservative measures. Recently, there have been a few case reports of conservative treatment of placenta accreta where the placenta has been successfully left in place.¹⁸ But for this kind of treatment the MAP has to be diagnosed antenatally in high risk patients with the help of Color Doppler ultrasound and MRI so that elective delivery can be undertaken.¹⁹

Total hysterectomy was done much more frequently (65%) compared to subtotal. However, several studies have suggested that subtotal hysterectomy may be superior because of lesser degree of hemorrhage and speed of operation.^{20,21} In our study, it was most probably the surgeon's own decision about which kind of hysterectomy to perform depending upon the clinical situation and their own surgical experience. In conclusion, our study showed EOH was performed most frequently due to ruptured uterus followed by uterine atony and MAP.

In order to reduce the rates of ruptured uterus and uterine atony, it is recommended that normal deliveries be conducted by midwives, who have received training in maintaining a partogram, safe use of syntocinon and active management of third stage of labor. On the other hand, the risk of morbidly adherent placenta can be reduced by reducing the number of unnecessary cesarean sections.

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