

Emergency Peripartum Hysterectomy at Sultan Qaboos University Hospital in Oman: A Nine-Year Study

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Abstract

Objective: To study risk factors, incidence, indications, and maternal and perinatal complications in women undergoing emergency peripartum hysterectomy (EPH) at Sultan Qaboos University Hospital (SQUH) in Oman.

Method: This is a retrospective study reviewing all cases of EPH performed at SQUH between January 2007 and December 2016.

Results: During the nine-year study period, there were 18 cases of EPH. Since the total number of deliveries in the same period was 32,963, the incidence of EPH was 0.55 per 1,000 deliveries. Of all cases of EPH, 13 (72.2%) were cesarean hysterectomies compared with five (27.8%) postpartum hysterectomies. Twelve cases (66.7%) were total hysterectomies and six (33.3%) were subtotal. The most common risk factor for EPH was placenta previa and accreta with previous cesarean section (CS) (27.6%), followed by previous CS without placenta previa (24.1%). The most common indication for EPH was placenta previa and accreta (44.4%), and previous CS (16.7%). During the study period, only one maternal death occurred (5.6%), and there were no stillbirths or early neonatal deaths. There were four cases of bladder injury (22.2%). Women aged 34–35 years and para > 5 had the highest incidence of EPH (50.0%).

Conclusion: To reduce the incidence of EPH and its catastrophic consequences, we need to identify high-risk cases antenatally and potential cases for EPH should be booked early during pregnancy and managed throughout pregnancy and delivery at a tertiary hospital by an experienced team.

Keywords: Emergency peripartum hysterectomy, Oman, placenta previa, placenta accreta, pregnancy management.

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Introduction

Peripartum hysterectomy is commonly performed as a life-saving procedure, usually performed at the time of CS as an emergency operation or after vaginal delivery. The incidence has varied from 0.364 per 1,000 deliveries between 2006–2010 in Turkey [1] to 6.2 per 1,000 deliveries between 2000–2010 in

Nigeria [2]. Emergency peripartum hysterectomy (EPH) is mainly performed either during CS or postpartum to stop life-threatening bleeding after the failure of other conservative measures to do so. Conservative treatment includes uterine massage, use of oxytocic drugs, B-Lynch sutures, recombinant factor VII, packing of the uterus, and embolization of uterine artery [3]. This severe bleeding is commonly due to placenta accreta, atonic uterus, coagulopathy, and ruptured uterus [2].

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Severe intrapartum or postpartum hemorrhage is a major cause of maternal death, especially in developing countries [4]. Placenta accreta is on the increase and is now the leading cause of intractable bleeding [4], becoming more common than rupture and atonic uterus [1, 5–6]. Abnormal placentation, including both placenta previa and placenta accreta, is increasing due to cesarean section rates rising worldwide [7].

This article reports on the risk factors, indications, complications, and maternal and perinatal outcomes of EPH performed at a tertiary teaching hospital in Oman between January 2006 and December 2015, to help improve both maternal and fetal outcomes.

Materials and methods

This is a retrospective study of the medical records of all women who underwent EPH during cesarean section due to intraoperative uncontrolled bleeding or following vaginal deliveries complicated by postpartum hemorrhage, between January 2007 and December 2016 at SQUH. Deliveries after 24

weeks were included in this study and hysterectomy was performed either during cesarean section or within few hours of vaginal delivery. From patient medical records, data were collected on demographics, mode of delivery, parity, type of hysterectomy, and perinatal and maternal outcomes, as well as complications with the hysterectomy, the amount of operative or post-operative blood loss, the amount of blood transfusion, and length of hospital stay.

Results

In this retrospective study, we reviewed all cases of EPH (n=18) performed at SQUH, in Muscat, Oman during the nine-year study period. The total number of deliveries was 32,963 and so the incidence of EPH was 0.55 per 1,000 deliveries. Table 1 shows that 72.2% of EPH cases (n=13) were performed at the time of CS while only 27.8% (n=5) were after delivery. The majority of cases of EPH (66.7%, n=12) were total hysterectomy and the remaining 33.3% (n=6) were subtotal hysterectomy (27.6%).

Table 1: Time and type of peripartum hysterectomy (n=18)

Time of Hysterectomy	n	%
Cesarean hysterectomy	13	72.2
Postpartum hysterectomy	5	27.8
Type of hysterectomy		
Total hysterectomy	12	66.7
Subtotal hysterectomy	6	33.3

Table 2 shows risk factors for EPH. The most common risk factors were previous CS with placenta previa and accreta 27.6% (n=8), previous CS without placenta previa 16.7% (n=3), placenta previa and accreta without previous CS 33.3% (n=6). There were no cases

of uterine rupture required hysterectomy during the study period. The atonic uterus was responsible for 5.6% of cases (n=1), placenta previa and accreta was the major indication for EPH, 77.8% of cases (n=14).

Table 2: Peripartum hysterectomy risk factors (n=18)

Risk Factor	n	%
Previous cesarean section & placenta previa & accreta	8	44.4
Previous cesarean section without placenta previa	3	16.7
Placenta previa & accreta without previous cesarean section	6	33.3
Atonic postpartum hemorrhage	1	5.6

Table 3 shows maternal and perinatal complications of peripartum hysterectomy. There were four cases of bladder injury (22.2%) and one case of maternal death (5.6%).

Table 3: Maternal & perinatal complications of peripartum hysterectomy (n=18)

Maternal complications	n	%
Maternal death	1	5.6
Bladder injury	4	22.2
Coagulopathy	2	11.1
Wound infection	2	11.1
Re-exploration due to hemorrhage	1	5.6

Table 4 shows that the majority of women who underwent EPH were in the 30–34 years age group (50.0%) followed by women in aged 35–39 (38.9%); there were no cases of EPH in

women younger than 25 years. This table shows also that increasing parity was associated with increased incidence of EPH, which was highest in para > 5 (33.3%).

Table 4: Patients characteristics (n=29)

Age (years)	n	%
<25	0	0
25–29	1	5.6
30–34	9	50.0
35–39	7	38.8
≥40	1	5.6
Parity	n	%
1	0	0
2	5	27.8
3	2	11.1
4	5	27.8
≥5	6	33.3

The mean blood loss was 3600 ml (300–9000 ml), while the average length of stay was 7.7 days (4–15 days).

Discussion

The incidence of EPH varies from country to country and recently the reported incidences have varied from 0.34 per 1,000 deliveries in Turkey [1] to 6.2 per 1,000 in Nigeria [2]. In

the Middle East, a study addressed the incidence of EPH in Kuwait and reported an incidence of 0.39 per 1,000 deliveries [8]. In this study, the incidence of EPH was 1.43 per 1,000 deliveries, which is similar to that reported elsewhere [9]. We also found that 50.0% of women who underwent EPH were aged 30–34 years and 33.3% of them had had five or more deliveries. In this age group and

with high parity, there are higher cesarean section rates and, subsequently, an increase in the incidence of placenta previa/accreta uterine rupture, and uterine atony [10].

As reported in other studies, abnormal placentation (placenta previa/accreta) was the most common indicator for EPH [11–12] due to the rise in cesarean section rates, while atonic uterus and ruptured uterus as indications for EPH are becoming less common because of extensive monitoring during labor and the use of uterotonic drugs during cesarean section or after vaginal delivery.

The complication rates of EPH are high because of massive bleeding. Since patients may develop coagulopathy, this will necessitate a massive blood transfusion. Because of adhesions due to previous cesarean sections, injury to pelvic organs such as the bowel, bladder, and ureter may occur [13]. All patients in this study received blood and the number of units transfused varied from 3–20 units. There were four cases of bladder injury which occurred in women who had extensive

adhesions due to previous cesarean sections. Persistent postoperative bleeding which required re-exploration occurred in a single case (5.6%) and this is comparable with Nisar et al. [14]. In our study, two patients (11.1%) developed disseminated intravascular coagulopathy (DIC), far fewer than reported by Nisar et al., who reported a 19% incidence [14].

There was only one case of maternal death (5.6%) in our study as compared to the 20% maternal mortality rate reported by Kwee et al. [13]. In our study, 12 cases (66.7%) of EPH had a total hysterectomy and the remaining were subtotal, while subtotal hysterectomy was performed in 72.4% of cases in the series reported by Obiechina et al [2].

In conclusion, to reduce the incidence of EPH and its catastrophic consequences, we need to identify high-risk cases antenatally. These cases should be booked early during pregnancy and managed both antenatally and after admission to the hospital by an experienced consultant.

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استئصال الرحم حول الولادة الطارئ في مستشفى جامعة السلطان قابوس في سلطنة عمان. تسع سنوات من الدراسة

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الملخص

الهدف: دراسة عوامل الخطر والوقوع والمؤشرات، ومضاعفات الأم والفترة المحيطة بالولادة للنساء اللواتي خضعن لعملية استئصال الرحم في فترة ما بعد الولادة في مستشفى جامعة السلطان قابوس في عمان .
الطريقة: هذه دراسة بأثر رجعي، حيث تمت مراجعة جميع الحالات التي أجريت في مستشفى جامعة السلطان قابوس بين يناير (2007) وديسمبر (2016).

النتائج: خلال فترة الدراسة تسع سنوات، كان هناك (18) حالة من استئصال الرحم حول الولادة. بلغ إجمالي عدد الولادات خلال الفترة نفسها (32,963) حالة، لذا كان معدل حدوث استئصال الرحم حول الولادة هو (0.55) لكل (1000) ولادة، من بين جميع حالات استئصال الرحم حول الولادة، كانت (13) حالة (72.2%) عملية قيصرية مقابل خمس حالات (27.8%) كانت استئصال الرحم بعد الولادة، واثنى عشرة حالة (66.7%) كانت استئصال الرحم الكلي، و ست حالات (33.3%) كانت استئصال الرحم الجزئي، وكان عامل الخطر الأكثر شيوعاً لاستئصال الرحم حول الولادة هو المشيمة المنزاحة، والترابط مع العملية القيصرية السابقة (27.6%)؛ يليه العملية القيصرية السابقة بدون المشيمة المنزاحة (24.1%)، وكان المؤشر الأكثر شيوعاً للعملية القيصرية السابقة هو المشيمة المنزاحة والملتصقة (44.4%)، والعملية القيصرية السابقة السابق (16.7%). خلال فترة الدراسة، وكانت هناك حالة وفاة واحدة فقط (5.6%)، ولم تكن هناك حالات ولادة جنين ميت، أو وفيات مبكرة للمواليد، وكانت هناك أربع حالات إصابة بالمثانة (22.2%)، وكان لدى النساء اللاتي تتراوح أعمارهن بين (34-35) عاماً والفقرات (< 5) أعلى نسبة إصابة لاستئصال الرحم حول الولادة (50.0%).

الخلاصة: لتقليل حدوث استئصال الرحم حول الولادة وعواقبه الكارثية، نحتاج إلى تحديد الحالات عالية الخطورة قبل الولادة، ويجب حجز الحالات المحتملة لاستئصال الرحم حول الولادة مبكراً في أثناء الحمل، وإدارتها في أثناء الحمل والولادة في مستشفى ثالث من قبل فريق متمرس.

الكلمات الدالة: استئصال الرحم الطارئ قبل الولادة، سلطنة عمان.