

Emergency peripartum hysterectomy: A retrospective study in a tertiary care hospital in Turkey from 2007 to 2015

Dilek Uysal, Hakan Cokmez, Cetin Aydin, Tolga Ciftpinar

Abstract

Postpartum haemorrhage is the most important cause of maternal morbidity and mortality, especially when all conservative measures, including syntometrine oxytocin and Bakri balloons have failed to accomplish haemostasis and expeditious surgical procedures, such as uterine artery ligation and emergency peripartum hysterectomy (EPH) are required. This retrospective study analysed 31 cases of EPH performed between January 2007 and January 2016 in the Department of Gynecology and Obstetrics of Izmir Ataturk Teaching and Research Hospital. All hysterectomies performed for bleeding not responding to other treatments within 24 h of vaginal delivery or caesarean section (CS) were included. Twenty-nine patients who underwent EPH (93.6%) had at least one previous CS ($p<0.05$). Two EPHs (6.4%) were performed after vaginal delivery ($p<0.05$). The most frequent indications were placenta previa with accreta (70.9%, $p<0.05$). There were no cases of maternal mortality. Previous CS and abnormal placental invasion were the most common indications for EPH.

Keywords: Emergency peripartum hysterectomy, Abnormal placentation.

Introduction

Postpartum haemorrhage is the most important cause of maternal morbidity and mortality, especially when all conservative measures, including syntometrine oxytocin and Bakri balloons, have failed to accomplish haemostasis and expeditious surgical procedures, such as uterine artery ligation and EPH are required.¹ Fortunately, the frequency of EPH required due to postpartum bleeding varies from 0.2 to 1.6 per 1000 deliveries.² However, this seldom used surgical procedure has a higher frequency in developing countries.³

Abnormal placentation has been associated with the increasing rate of caesarean delivery and is the most frequent indication of EPH.⁴

.....
Department of Gynecology and Obstetrics of Izmir Ataturk Teaching and Research Hospital, Izmir, Turkey.

Correspondence: Hakan Cokmez. Email: hakancokmez@hotmail.com

The most common complications of EPH operation are excessive bleeding of over 4000 cc, disseminated intravascular coagulation associated with massive transfusion, overhydration, infection and bladder injury.⁵

The aim of this study was to estimate the frequency, indications and complications associated with EPH

Case Series

All cases of EPH performed from January 2007 to January 2016 at the Department of Gynaecology and Obstetrics of Izmir Ataturk Teaching and Research Hospital were retrospectively collected. The study was approved by the Institutional Ethics Committee and the consent of the patient was taken prior to the writing of the manuscript.

All hysterectomies that were done when medical or minor surgical procedures failed for intractable haemorrhage at the time or within 24 h of vaginal or abdominal delivery with a gestational age of more than 24 weeks were included.

Clinical parameters, such as maternal age, parity, previous abortions or uterine operations, gestational age at

Table-1: Characteristics of 31 women who underwent EPH.

Characteristics	N, %
Age (years)	
15-25	8 (26%)
26-35	8 (26%)
36-40 $\geq$	15 (48%)
Gestational age (weeks)	
24-32	12 (38.7%)
33-37	12 (38.7%)
38-42	7 (22.6%)
Parity	
0	1 (3.2%)
1	11 (35.5%)
2 $\geq$	19 (61.3%)
Previous Caesarian Section in EPH patient group	
1	11 (35.5%)
2 $\geq$	19 (61.3%)
Mode of delivery	
Vaginal delivery	2 (6.5%)
Abdominal delivery	29 (93.5%)

Table-2: Complications of EPH.

Complications	N, %
Bladder injury	9 (29%)
Febrile morbidity	4 (12.9%)
Wound infection	4 (12.9%)
DIC	3 (9.6%)
Gastrointestinal complications	7 (22%)

DIC: Disseminated Intravascular Coagulation.

delivery and associated risk factors such as the method of delivery, indication for caesarean section (CS), perioperative or postoperative complications and maternal outcomes were obtained from medical records. The operative notes and pathology reports of the uterus and placenta were also used to define the indications.

According to the frequency of EPH in the population. Sample size calculated depending on 99% confidence level was 10. In the study 31 EPH cases were collected. Fisher's exact test and the chi-square test for categorical variables were used for statistical analysis. A p-value of <0.05 was assumed to indicate statistical significance.

During the 9 years of the study period, a total of 10,553 deliveries occurred. There were 6043 (58.2%) vaginal deliveries and 4410 (41.8%) abdominal deliveries. Thirty-one EPH cases were defined with a frequency of 2.9 per 1000 deliveries. In this study, EPH was performed for 2 patients (6.4%) after vaginal deliveries and 29 patients (93.6%) after abdominal deliveries. Thus, the EPH rate was significantly higher in the abdominal delivery group (6.4 per 1000 deliveries) than the vaginal delivery group (0.3 per 1000 deliveries).

The mean maternal age was 34.4 years. The mean gestational age was 33 weeks and 1 day (± 3 weeks + 2 days). There was 1 primiparous woman (3.2%) and 30 multiparous women (96.8%).

The most common indication of EPH was abnormal placentation 22 (70.9%). Other indications were uterine atony 6 (19.4%) and uterine rupture 3 (9.7%).

Eleven women (35.5%) who underwent EPH had a previous CS, and 19 women who underwent EPH (61.3%) had more than 1 previous CS. Fifteen (68.1%) abnormal placentation patients had more than one previous CS ($p < 0.01$).

The most common surgical complication was bladder injury, which occurred in nine patients (29%). Postoperative complications included febrile morbidity in four cases (12.9%), wound infection in four cases (12.9%), disseminated intravascular coagulopathy (DIC) in three

cases and gastrointestinal complications affecting only the subileus in seven cases (22%) in this study.

The mean period of hospitalisation was 9 ± 3 days, and the mean stay in intensive care service was 3 ± 1 days.

In this study period, there were no cases of maternal mortality among the EPH patients.

Discussion

In this study, the frequency of EPH was 2.9 per 1000 deliveries. Remarkable variability for the frequency of EPH, including ranges from 0.2 to 5 per 100 deliveries, exist in the literature.⁴ This variability may be associated with the different levels of development among the countries in which the studies were conducted. However, most studies with a high frequency of EPH were done in institutions that accepted patients who had more than two previous CS. Thus, the frequency of EPH in this study could be considered high because our institution accepts all of the Aegean section in Turkey, especially patients who have two or more previous CS.

In fact, the frequency of EPH after vaginal delivery ranges from 0.1 to 0.3 per 1000 deliveries, but in previous CS patients, the frequency of EPH increases to 1.1 to 8.9 per 1000.^{6,7} A higher the number of previous CS means a higher abnormal placentation.² In addition, our study showed that the most common indication of EPH was abnormal placentation with placenta previa (70.9%). Placenta accreta ratio in placenta previa cases without surgery was 5% but, with one or more previous uterine surgery was 24% and 50%, respectively.⁸ Nineteen (61.3%) patients in our study had two or more previous CS and 15 (68.1%) abnormal placentation patients had more than one previous CS. Actually, a previous CS increases the risk of abnormal placentation with pathological adherence. Additionally, the present study confirms that CS is the main risk factor for EPH.

Another indication of EPH in our study was uterine atony (19.4%). This result was slightly lower than that reported in the literature, but recent studies have shown that the ratio of EPH for uterine atony has decreased.⁶ This is most likely due to the increased success of treatment with uterotonic agents, prostaglandins, embolisation, uterine catheters and surgical procedures, such as the B-Lynch technique or selective devascularisation.⁵

Uterine rupture (9.7%) was the other indications of EPH in our study. This result agrees with the report by Flood et al. (9.3%).¹⁰

The most common complication of EPH in this study was bladder injury (29%). This result could be associated with

the high ratio of placenta previa with accreta (70.9%) in our study. Bladder injury can usually be seen in placenta percreta cases with invasion behind the bladder.¹⁰

There were no cases of maternal mortality in our study period. This result parallels with the decreased maternal mortality due to EPH in the literature. Decreased maternal mortality in EPH cases is most likely due to the increased success of prenatal diagnosis of placenta previa and accreta. Thus, peripartum hysterectomy begins to be performed during the elective CS rather than during emergency procedures.

The present study has some limitations. Firstly the study is single-centered. Secondly we collected the data retrospectively. Multicenter prospective studies may give more accurate results about EPH.

Conclusion

Abnormal placentation has been associated with the increasing rate of caesarean delivery is the most frequent indication of EPH. Also in this study the frequency of EPH could be considered high because our institution accepts all of the Aegean section in Turkey, especially patients who have two or more previous CS. According to that situation to control the seldom used surgical procedure in developing countries may decrease the frequency of EPH.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

References

1. Mavrides E, Allard S, Chandrachan E, Collins P, Green L, Hunt BJ, et al. Royal College of Obstetricians and Gynaecologists. Prevention and management of postpartum haemorrhage. [online] [cited 2016 Jun 12]; Available from: URL: <https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg52/>
2. Bateman BT, Mhyre JM, Callaghan WM, Kuklina EV. Peripartum hysterectomy in the United States: nationwide 14 year experience. *Am J Obstet Gynecol*. 2012; 206:63.e1-8.
3. Fatima M, Kasi PM, Baloch SN, Afghan AK. Experience of emergency peripartum hysterectomies at a tertiary care hospital in Quetta, Pakistan. *ISRN Obstet Gynecol*. 2011; 2011:854202.
4. Rossi AC, Lee RH, Chmait RH. Emergency postpartum hysterectomy for uncontrolled postpartum bleeding. *Obstet Gynecol*. 2010; 115:637-44.
5. Shrivastava V, Nageotte M, Major C, Haydon M, Wing D. Case-control comparison of cesarean hysterectomy with and without prophylactic placement of intravascular balloon catheters for placenta accreta. *Am J Obstet Gynecol*. 2007; 197:402.e1-5.
6. Sahin S, Guzin K, Eroglu M, Kayabasoglu F, Yasartekin MS. Emergency peripartum hysterectomy: our 12-year experience. *Arch Gynecol Obstet*. 2014; 289:953-8.
7. Yalcinkaya A, Guzel AI, Kangal K. Emergency peripartum hysterectomy: 16-year experience of a medical hospital. *J Chin Med Assoc*. 2010; 73:360-3.
8. Mok M, Heidemann B, Dundas K, Gillespie I, Clark V. Interventional radiology in women with suspected placenta accreta under going cesarean section. *Int J Obstet Anesth*. 2008; 17:255-61.
9. Flood KM, Said S, Geary M, Robson M, Fitzpatrick C, Malone FD. Changing trend in peripartum hysterectomy over the last 4 decades. *Am J Obstet Gynecol*. 2009; 200: 632.e1-6.
10. Lee PS, Bakelaar R, Fitzpatrick CB, Ellestad SC, Havrilesky LJ, Secord AA. Medical and surgical treatment of placenta percreta to optimize bladder preservation. *Obstet Gynecol*. 2008; 112:421-4.