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Evaluation of The Emergency Peripartum Hysterectomy Cases: Experience of 5 years

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Abstract

Objective: The purpose of this study is to evaluate the emergency peripartum hysterectomies performed due to obstetric complications.

Methods: We analyzed retrospectively 18 cases of emergency peripartum hysterectomy that were performed at Cerrahpaşa School of Medicine, Department of Obstetrics and Gynecology from January 2006 to December 2010. The incidence, demographic characteristics, associated risk factors, indications of hysterectomy, peripartum complications, maternal morbidity and mortality of the cases were analyzed retrospectively.

Results: Emergency peripartum hysyerectomy performed in 18 cases. The overall incidence of emergency peripartum hysterectomy was 2.9 per 1,000 deliveries. The indications of hysterectomy were identified as 6 cases (33.6%) placenta insertion anomalies, 5 cases (27.7%) placenta previa, 4 cases (22.2%) uterine atonia, 2 cases (11.1%) uterine rupture, and 1 case (5.6%) with an adnexial mass respectively. The emergency peripartum hysterectomy was done in 4 of the cases (22.2%) after vaginal delivery and 14 of the cases (77.7%) during cesarean section. 14 cases (77.7%) were underwent total, 4 cases (22.2%) were underwent subtotal hysterectomy. During the operation, urinary complications occurred in 5 cases (27.7%). In 3 cases (16.6%) relaparatomy was performed. Maternal and fetal mortality occured in 1 case (5.5%).

Conclusion: In our study, the most common indication for emergency peripartum hysterectomy was placental insertion abnormalities. Together with a significant increase in cesarean rates, significant increases in the frequency of plasenta inserton abnormalities is noteworthy. Cases of pregnant women who had placenta previa and prior cesarean section, the placenta should be carefully evaluated in terms of placenta insertion abnormalities. Entering the risk group of pregnant women, the centers which have adequate staff and equipment to be recommended for delivery. As a result; emergency peripartum histerectomy is a procedure with high mortality and morbidity but is life-saving when performed at suitable time.

Keywords: Emergency peripartum hysterectomy, incidence, indication, placenta insertion abnormalities, mortality.

Acil peripartum histerektomi olgularının değerlendirilmesi: 5 yıllık deneyim

Amaç: Hastanemizde obstetrik nedenlerle gerçekleştirilen acil peripartum histerektomi olgularının, değerlendirmesini yapmak.

Yöntem: Cerrahpaşa Tıp Fakültesi Kadın Hastalıkları ve Doğum Kliniğinde Ocak 2006 ile Aralık 2010 tarihleri arasında obstetrik nedenlerle acil peripartum histerektomi yapılan 18 olgunun demografik özellikleri, insidansı, risk faktörleri, histerektomi endikasyonları, gelişen komplikasyonları, maternal mortalite ve morbiditesi retrospektif olarak incelendi.

Bulgular: 18 olguya acil peripartum histerektomi yapıldı. Acil peripartum histerektomi insidansı binde 2.9 olarak belirlendi. Histerektomi endikasyonları; plasenta yapışma anomalisi 6 olgu (%33.6), plasenta previa 5 olgu (%27.7), uterin atoni 4 olgu (%22.2), uterin rüptür 2 olgu (%11.1) ve adneksiyal kitle 1 olgu (%5.6) olarak kaydedildi. Histerektomilerin 14'ü (%77.7) sezaryen sonrası, 4'ü (%22.2) normal doğum sonrası uygulandı. Olguların 14'üne (%77.7) total, 4'üne (%22.2) subtotal histerektomi yapıldı. Operasyon sırasında 5 olguda (%27.7) üriner komplikasyon gelişti. 3 olguya (%16.6) relaparatomi yapıldı. 1 olguda (%5.5) maternal ve fetal mortalite gelişti.

Sonuç: Çalışmamızda acil peripartum histerektominin en sık endikasyonu plasenta yapışma anomalileri olarak bulundu. Sezaryen oranlarındaki belirgin artış ile birlikte plasenta yapışma anomalilerinin sıklığında da ciddi artışlar dikkati çekmektedir. Plasenta previa olguları ve daha önce sezaryen operasyonu geçirmiş gebeler, plasenta yapışma anomalisi açısından dikkatlice değerlendirilmelidir. Riskli gruba giren gebelere, yeterli ekip ve ekipmanın bulunduğu merkezlerde doğumun gerçekleştirilmesi önerilmelidir. Sonuç olarak APH; yüksek maternal mortalite ve morbidite ile seyretmekle birlikte, zamanlaması doğru ve yerinde yapıldığında hayat kurtarıcı bir işlemdir.

Anahtar Sözcükler: Acil peripartum histerektomi, insidans, endikasyon, plasenta yapışma anomalisi, mortalite.

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Introduction

Peripartum bleedings are one of the most important reasons of maternal mortality and morbidity in developing countries[1] Serious bleedings that may cause hemorrhagic shock due to pregnancy may appear due to placenta detachment, placenta praevia, placenta attachment anomalies, uterus rupture, uterus atonia, inversion of uterus, delivery laceration and placenta retention. Plasma volume in a normal pregnancy increases approximately 1500 ml. This hypervolemia plays a protective role for peripartum bleedings. In addition to fix hypervolemia and coagulopathy, effective treatment of underlying reason of bleeding is essential by surgical methods. Emergency peripartum hysterectomy (EPH) is applied due to life-threatening uterine bleedings after normal vaginal delivery, during cesarean or after cesarean.[2] Though EPH operations display high mortality, it can be life-saving when it is applied in emergency cases and on proper indication. EPH has shown decrease in recent years thanks you efficient antibiotherapy, uterotonic agents and blood transfusion techniques.

Uterine rupture, uterine atonia, and placenta attachment anomalies are frequent EPH indications. While uterine rupture and uterine atonia were deemed as the most frequent reasons of EPH in previous years, it is seen in developed countries that placenta attachment anomalies are the most frequent reason due to the increase of cesarean rates, development of surgical treatment of uterine atonia as well as medical and hysterectomy developments. Placenta attachment anomaly is often associated with uterine scar, cesarean history and advanced maternal age.[3, 4]

Our purpose in this study is to determine the incidence, indications, risk factors of EPHs, and their effects on maternal and fetal mortality and morbidity in last 5 years.

Methods

We analyzed 18 EPH cases applied to Cerrahpaşa School of Medicine, Department of Obstetrics and Gynecology due to various obstetric reasons from January 2006 to December 2010. Also delivery number in our clinic was determined. EPH incidence was calculated. Patient information was obtained from hospital records and patient files.

Demographical aspects of the patients were recorded (age, gravida, parity, gestational week, delivery types). Hysterectomy indications, applied hysterectomy type, required blood transfusion amount, complications developed intraoperatively and postoperatively were determined.

Uterine massage and uterotonic medical treatment were applied before hysterectomy (especially in atonia cases). Hypogastric artery ligation was tried on cases that did not response. EPH was performed on postpartum bleeding cases that continued despite all these precautions.

Cases which developed intraoperative or postoperative disseminated intravascular coagulation (DIC) were evaluated with the results of prothrombin time (PT), activated partial thromboplastin time (APTT), fibrinogen and fibrinogen degradation products.

Results

Totally 6043 deliveries performed in our clinic between January 2006 and December 2010.

In the same period, emergency hysterectomy was performed to 18 (0.29%) patients for various reasons. Mean age of the patients was calculated as 34.2, gravida as 4.0 and mean parity as 1.7. All cases were multigravida. Mean gestational week was found as 32.4. Blood transfusion was performed to all patients.

13 of EPHs were total (72.2%) while 4 (22.2%) of them were subtotal. EPH indications were shown in Table 1. According to this, it was found that the most frequently detected EPH indication was placenta attachment anomaly (placenta accreta, placenta increta, placenta percreta) (33.3%). By confirming with pathology reports, 3 patients with placenta attachment anomaly were diagnosed as placenta percreta, 2 patients as placenta increta and 1 patient as placenta accreta. Two of 3 cases with placenta percreta previously had two cesarean sections and 1 case had only one normal delivery.

Two cases with placenta increta had two cesarean sections undergone. One case with placenta accreta had three cesarean sections undergone.

In EPH cases, most frequently detected second indication was found as placenta praevia (27.7%).

Table 1. Demographical aspects of cases.

	Average values	Minimum – Maximum
Average age	34.2	30-43
Gravida	4.0	2-7
Parity	1.7	1-5
Gestational week	32.4	17-38
Given blood product (unit)	7.3	4-10

Table 2. Emergency peripartum hysterectomy indications.

	Patient number
Uterine atonia	4 (22.2%)
Placenta praevia	5 (27.7%)
Uterine rupture	2 (11.1%)
Placenta attachment anomaly (P. percreta, P. increta, P. accreta)	6 (33.3%)
Adneksiyal kitle	1(%5.5)

Table 3. Peripartum hysterectomy complications.

	Patient number
Bladder injury	3 (16.6%)
Ureteral injury	2 (11.1%)
Disseminated intravascular coagulation	6 (33.3%)
Relaparatomy	3 (16.6%)
Maternal mortality	1 (5.5%)
Fetal mortality	1 (5.5%)

Three cases were diagnosed as placenta praevia totalis and 2 cases were diagnosed as placenta praevia marginalis. All placenta praevia cases had cesarean section history undergone.

Most frequently detected third indication in EPH cases was uterine atonia (22.2%). Uterine atonia was developed in 2 cases after normal delivery and in 2 cases after cesarean. Subtotal hysterectomy was performed to all these cases.

EPH was applied to 2 cases due to uterus rupture indication. Uterus rupture spontaneously existed in the first case (G 2, P 1) after a long labor at 39th gestational week and in the second case (with one cesarean section history) at 17th gestational week.

Other EPH indication was adnexal mass detected at 10th gestational week. It was decided to follow up the mass during pregnancy. It was concluded to perform the labor at 34th gestational week due to compression symptoms of the mass which filled whole pelvis and abdomen and caused general condition disorder. As frozen response of the biopsy taken from the mass during cesarean section came from mucinous cystadenocarcinoma, Total Abdominal Hysterectomy, Bilateral Salpingo-oophorectomy + Omentectomy + Pelvic Lymphadenectomy+Paraortic Lymphadenectomy + Appendectomy were performed.

Bilateral hypogastric artery ligation was performed to 5 cases who were applied EPH. Averagely 7.3 (4-10) units of blood products (blood, fresh frozen plasma, erythrocyte and thrombocyte suspension) were transfused to all cases.

Bladder injury occurred in 3 cases and ureteral injury occurred in 2 cases as intraoperative complications. Bladder was primarily repaired during operation in our cases that had bladder injury. Ureteroneocystostomy was done by relaparatomy to our 2 cases that had ureteral injury. Relaparatomy was done to our one case due to hemorrhage developed during postoperative period.

DIC developed totally in 6 cases. Our only case which was resulted maternal and fetal mortality was the patient who had maternal aorta stenosis. Uterine atonia and DIC developed during operation in the patient who was taken to cesarean due to fetal distress at her 34th gestational week. Fetus who had 1st minute APGAR score as 2 and 5th minute APGAR score as 2 was delivered. During operation, cardiac arrest developed in the patient who had EPH. Mother and fetus did not response to the resuscitation and maternal and fetus exitus occurred.

Discussion

Cesarean hysterectomy was first performed by Dr. Eduardo Porro in 1876 in order to protect maternal and fetus health. Performing hysterectomy as a final treatment step in bleedings due to obstetric reasons is quite essential surgical treatment method for saving mother's life.[5] In our clinic, EPH incidence was determined as 2.9/1,000 different than the literature. This rate was reported as 0.33/1,000 in Holland, 0.5/1,000 in Israel, 1.43/1000 in the USA, 2.3/1,000 in Southern Korea,

and 4.34/1,000 in Nigeria.[3,6-8] Rates reported in the studies performed in Turkey are 0.25/1,000 by Özden et al., 0.26/1,000 by Zeteroğlu et al. and Akar et al., and 4/1,000 by Yalınkaya et al.[9-13] Wide incidence range given in these studies can be associated with different geographical and socio-economic structures, difference of antenatal and peripartum care conditions and patient density of hospitals.

Advanced maternal age and multiparity are prominent risk factors for peripartum hysterectomy.[15-17] In our study, mean maternal age was 34.2 and mean gravida was 4.0. These findings were consistent with the literature.

When compared in terms of delivery type, it was reported that the rate of performing hysterectomy after cesarean was 10 times higher than performing after normal delivery.[3] In our study, consistent with the literature, EPH was performed to 4 (28.6%) cases after normal delivery and to 14 (71.4%) cases after cesarean section.

Yamani et al. reported in their study that the most frequent indication of EPH was uterine atonia.[17] However, it was reported in the studies of Kwe et al., Kastner et al., and Kayabaşoğlu et al. that the most frequent indication was placenta attachment anomalies.[3,6,18] In our study, placenta attachment anomalies were the first frequent indication of EPH with the rate of 33.3%, uterine atonia was the third frequent indication of EPH with the rate of 22.2%. In the studies performed, it was shown that cesarean delivery was a risk factor for placenta attachment[15] In 5 of 6 cases detected as having placenta attachment anomaly had the history of cesarean undergone. Placenta percreta developed only in one case after previous normal delivery. Yet, this case had the history of 2 curettages. Within the lights of literature, placenta attachment anomaly as the most frequent indication of EPH in our study may be associated with increased cesarean rates.

In our study, placenta praevia (27.7%) is seen as the most frequent second indication. Placenta attachment anomalies are seen approximately 25% of cases who have placenta praevia and the history of cesarean undergone.[19] EPH possibility of cases that undergone two or more cesarean sections previously and detected placenta praevia varies between 30% and 50%.[15,20]

Peripartum hysterectomy can be done as subtotal (supracervical) or total depending on clinical conditions. While total hysterectomy is performed in planned conditions, subtotal hysterectomy may be preferred in emergency cases where there is life-threatening hemorrhage or difficult cervix dissection. Compared to total hysterectomy, subtotal hysterectomy is a more rapid process and recommended for non-stable patients though it is not associated with less blood loss or less morbidity.[21] The possibility of performing subtotal hysterectomy in atonia cases is higher. Total hysterectomy was performed to 14 (77.8%) cases and subtotal hysterectomy was applied to 4 (22.2%) cases in our study. All of those who were applied subtotal hysterectomy were atonia cases.

Cesarean hysterectomy technique includes some surgical principles as non-pregnants. If possible, it should be paid attention to push bladder downward before hysterectomy as it may be difficult to push bladder after uterine incision and delivery of fetus.

As frozen response of the biopsy taken from the mass during cesarean section came from mucinous cystadenocarcinoma +

In our study, we performed total abdominal hysterectomy + bilateral salpingo-oophorectomy + pelvic lymphadenectomy + paraortic lymphadenectomy + appendectomy (frozen response: mucinous cystadenocarcinoma) to one case due to adnexal mass diagnosis during pregnancy.

First of all, bilateral hypogastric artery ligation was performed in our 5 cases. EPH process was performed in these cases when bleeding could not be controlled. Hypogastric artery ligation can be done before or together with the hysterectomy in order to get under control bleeding.

Main complications of EPH are urological injuries and bleeding. Transfusion frequency was reported as 75%.[22] Blood and blood products were transfused to all cases in our study. Average transfused blood product was determined as 7.3 (4-10) units. There were 5 (27.7%) cases who had ureteral injury as 3 of them were bladder injury (16.6%) and 2 of them were ureteral injury (11.1%). DIC developed in our 6 cases (33.3%). Relaparatomy was applied to our 3 cases. 2 of them were done due to ureteral repair (neocystostomy) and one of them was done due to hemorrhage developed postoperatively.

In the literature, maternal mortality together with EPH is reported between 0% and 17%. [9,23] In our study, maternal and fetal mortality occurred in the same case. The case with maternal aortic stenosis was taken to cesarean section due to fetal distress at her 34th gestational week. Maternal and fetal mortality could not be prevented in the patient who developed DIC and atonia during the operation. In our study, maternal and fetal mortality incidence in EPH cases was reported as 5.5%.

In developing countries, uterine atonia has still been the most frequent indication for postpartum hemorrhage and EPH. However, together with the certain increase in cesarean rates, it stands out that there are serious increases in the incidence of placenta attachment anomalies. In our study, we see that placenta attachment anomalies are the most frequent indication of emergency peripartum hysterectomy. Placenta praevia cases and pregnants who previously had cesarean operations should be evaluated carefully in terms of placenta attachment anomaly. Delivering in the centers which have adequate staff and equipment should be recommended for pregnants who are in risk group.

Conclusion

EPH is with high mortality and morbidity but also a life-saving procedure if it is performed properly and well-timed.

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