

Clinical Analysis of Emergency Peripartum Hysterectomy (EPH)

Shazia Rasul, Shabnam Tahir, Lubna Riaz, Asma Gul
Department of Gynae/Obs, Shalamar Medical and Dental College, Lahore

Abstract

Background: To find out the incidence, risk factors, indications and outcome of emergency peripartum hysterectomy, including maternal morbidity (ICU admission, blood transfusion, urological injuries, DIC) and maternal mortality.

Methods: In this cross sectional study patients requiring emergency peripartum hysterectomy were included. The demographic data, risk factors, indications and outcome including maternal morbidity (ICU admission, blood transfusion, urological injuries, DIC) and maternal mortality, were recorded. Patients who required emergency peripartum hysterectomy at delivery or during 24 hours after delivery and had gestational age more than 28 weeks were included in the study. However patients who had EPH after 24 hours of delivery or before 28 weeks of gestation either due induced septic abortion or uterine perforation were excluded.

Result: The total number of patients delivered during the study period was 10,030, out of which 22 patients required EPH (2.1 per 1000 .Most common cause of EPH was previous caesarean section and placenta previa type IV with morbidly adherent placenta (n=13 ,59.09%).Uterine atony not responding to conservative management for EPH was second commonest reason for EPH(n=8 ,36.36%)and uterine rupture was third indication for EPH(n=1,4.55%). Fifty nine percent required admission in intensive care unit,three patients had Urological injuries and two maternal deaths occurred out of 22 patients due to disseminated intravascular coagulation.

Conclusion: Emergency peripartum hysterectomy is associated with significant morbidity and maternal mortality. Abnormal adherent placenta is the most common cause of EPH. All of patients who required EPH, had previous cesarean section, so all measures should be adopted to reduce the primary cesarean section rate.

Key Words: Post partum hemorrhage, Maternal morbidity, Caesarean section

Introduction

Post partum hemorrhage is still leading cause of maternal mortality all over the world. Emergency peripartum hysterectomy (EPH) is a life saving procedure to control bleeding in patients with post partum hemorrhage where all other conventional methods have failed. Peripartum hysterectomy is a life saving and major operation and is invariably performed in the presence of life threatening hemorrhage during or immediately after abdominal or vaginal deliveries where all other conventional methods have failed.¹ Despite advances in medical and surgical fields ,post partum hemorrhage continues to be the leading cause of maternal morbidity & mortality. ^{1,2}The risk factors for post partum hemorrhage include uterine atony, retained products of conception, precipitate or prolonged labor, fetal macrosomia, multiparity,, coagulopathies, and previous primary post partum hemorrhage. Traditionally uterine atony was the most common indication for EPH. Recent studies however have indicated a change in the trend towards abnormal placentation.²⁻⁵

Hysterectomy following cesarean section (CS) was first described by Porro, and was used to prevent maternal mortality due to post partum hemorrhage. ⁶ Emergency peripartum hysterectomy is associated with significant morbidity and mortality world wide.⁷ The unplanned nature of the surgery and the need for performing it expeditiously compounds matter. Moreover the acute loss of blood renders the patient in a less than ideal condition to undergo emergency surgical intervention. Recognizing and assessing patients at risk and appropriate and timely intervention would go a long way in ensuring a better outcome in this otherwise difficult situation. In situations where conservative treatment is likely to fail or has failed, there should be no further delay in performing EPH as delay leads to increase in blood loss, transfusion requirement, operative time, DIC, and increased possibility of admission to ICU.⁵

Patients and Methods

In this cross sectional study patients requiring emergency peripartum hysterectomy were included . Study was conducted from Jan, 2010 to Dec, 2014, in Gynae/Obs Department of Shalamar Medical College.The demographic data, indications and outcome including maternal morbidity (ICU admission, blood transfusion, urological injuries, DIC) and maternal mortality, were recorded in predesigned proforma. Patients who required emergency peripartum hysterectomy at delivery or during 24 hours after delivery and had gestational age more than 28 weeks were included in the study however patients who had EPH after 24 hours of delivery or before 28 weeks of gestation either due induced septic abortion or uterine perforation were excluded from study.

Results

The total number of patients delivered during the study period was 10.030, out of which 22 patients required EPH (2.1 per 1000 deliveries).Mean age of patients who underwent EPH was 28.7±4.56.Their parity was 2.36±1.10 and gestational age at which EPH was performed was 35 ±2.28 weeks (Table 1). Most of these patients (59%) were operated because of previous Cesarean sections and placenta previa. Regarding mode of delivery, 45.45% of patients had elective caesarean section, 40.91% had emergency caesarean section and 13.64% had vaginal delivery (Table 2). Most common cause of EPH was previous caesarean section & placenta previa- IV with morbidly adherent placenta in 59.09% cases (Table 3) .Uterine atony was the cause in 36.36% of cases and uterine rupture was indication in 4.55 % cases . Due to complications 59% of these patients required admission in intensive care unit, three patient had Urological injuries. One of our patients required re exploration due to suspicion of internal hemorrhage and maternal deaths occurred in two, out of 22 patients due to DIC (Table 4).

Table 1 :Demographic data

Characteristics	Mean	Standard deviation (SD)
Age (years)	28.7	4.56
Gravidity	3.76	1.48
Parity	2.36	1.10
Gestational age (weeks)	35weeks	2.28

Discussion

Emergency peripartum hysterectomy is an uncommon obstetric procedure, usually performed as a life saving

Table 2: Mode of delivery

Mode of delivery	No (%)
Elective Cesarean section	10(45.45)
Emergency Cesarean section	9(40.91)
Vaginal delivery	3 (13.64)

For mode of delivery data is expressed as number and percentages .

Table 3: obstetrical history

Past History	No	%age
Previous 2 or 3 Caesarean section	16	72%
a- previous scar& placenta previa in current pregnancy	13	81.25%
b- previous scar without placenta previa in current pregnancy	3	18.75
No Previous scar	6	27.3%

Table 4:Indications of EPH

Indications	No (%)
Placenta previa IV and abnormally adherent	13(59.09)
Uterine atony	8(36.36)
Uterine rupture	1(4.55)

Table 5:Complications of EPH

Complications	No (%)
ICU admission	13 (59.09)
Urological injury	3 (13.63)
Re exploration	1(4.54)
Maternal death	2(9.09)

measure for intractable hemorrhage, where all other conventional methods have failed to control the bleeding. ⁸ Despite the advances in the medical & surgical fields, post partum hemorrhage is still the leading cause of maternal mortality.⁹The incidence of EPH ranged from 0.20 to 5.09 per 1000 deliveries with a median of 0.61 per 1000 deliveries.¹⁰ Incidence in our patient is 2.1 per 1000 deliveries, is same to as shown by a 14 years review in a tertiary care hospital in Rome Sapienza¹¹. Incidence of EPH is different in high-income developed countries 0.61 per 1000, where it is different in developing countries, like in our study. However it varies within different areas of same country as shown by Fawaad A, as 72 patients out of 6535(11 per 1000 deliveries).¹² and another study done in Quetta, Pakistan mentioned incidence as 4 per 1000 deliveries.¹³ Basically it depends on modern obstetric services, standard and awareness of antenatal care, effectiveness of family planning activities in a given community.³

Previous cesarean section increases the risk of EPH and abnormal placentation is associated with previous scar.⁸The incidence of placenta praevia is 9/1000 after one cesarean section and is increased to 47 fold to 91 /1000 in patients with four cesarean section.⁹ Cesarean section delivery itself is also one of contributing factor for EPH.⁹ According to studies the commonest indication for EPH is adherent placenta.¹¹⁻¹⁷ The main cause of uncontrollable hemorrhage leading to EPH has changed since 1980, from uterine atony to abnormal placentation.^{8,4,18} Although the most common cause of post partum hemorrhage is still uterine atony but use of uterotonics has reduced the hemorrhage related morbidity.¹⁹ B_lynch suture (compression suture) was first reported in 1997.²⁰ Success rate of B_lynch suture was reported to be 75% and increased to 94.4 % when combined with bilateral internal iliac ligation.^{20,21} Uterine pressure is also possible while managing PPH, by use of Bakri Balloon tamponade, which provides to be safe, effective , alternate easy to use.²² Combination of uterine artery ligation, B_lynch suture, Bakri balloon tamponade may be the best surgical approach due their higher success rate in woman with PPH due to uterine atony.²³ These methods are effective to control hemorrhage due to uterine atony. However the indication varies from region to region. A study from Quetta, Pakistan, showed that most common indication of EPH was uterine rupture.^{8,24} We had only one patient of uterine rupture who had previous two lower segment cesarean section presented in labour and then ended up in EPH due to severe PPH. This variation depends upon modern obstetric services, standard and awareness of antenatal care, effectiveness of family planning activities in given community. Abnormal adherent placenta is found to be major cause of previous cesarean section in all of our patients, as cesarean increases risk for both abnormal adherent placenta and then for EPH.^{11, 16, 25,26} EPH is associated with maternal morbidity and mortality. Hundred percent of our patients needed blood transfusion during or immediate post operative periods. Similar results were shown by Fatima M, Lovina S, Carvaltio J F.^{9,13,16,26} EPH is basically associated with extensive blood loss and then blood transfusion. Average blood transfusion in our patient was 4 units including fresh whole blood, FFP, platelet mega units. Caevaltio IF showed all of their patients required blood transfusion, with a median of 9(4 to 35).¹³

Intensive care unit (ICU) admission after such an extensive surgery, use to make not only economic

burden as well mental, psychological stress to patients as well as relatives. In our patients, 59% of patients required ICU admission including those haemodynamically unstable, who had massive blood transfusion and for monitoring purpose.

The urological injuries were recorded in 3 patients in our study. All of these three patients had previous cesarean section (one with previous 4 and others previous two), these injuries were due to scarring and secondary adhesions of vesicouterine space following previous cesarean sections. Carvalho et al and Lovino et al also showed the similar results.^{8,9} Re exploration was performed in one of our patient due to suspicion of internal bleeding. This patient developed DIC, pulmonary embolism and to maternal death. Wrong TY also reported two patients who required explorations.²⁷ There were two maternal deaths in these patients who had EPH .Both of these patients developed DIC .One of them had liver cirrhosis due to hepatitis C and other patient developed pulmonary embolism leading to DIC in postoperative period. Limitation of our study is the non-availability of surgical expertise for internal iliac ligation in emergency cases and uterine artery embolization for our patient who underwent EPH, both of them may reduce the incidence of EPH.

Conclusion

1. Emergency peripartum hysterectomy is associated with significant morbidity and maternal mortality.
2. Abnormally adherent placenta is the most common cause of EPH. All of patients who required EPH, had previous cesarean section, so all measures should be adopted to reduce the primary cesarean section rate.
4. Patients having multiple risk factors like previous caesarean section, placenta previa and abnormally adherent placenta are more at risk of EPH
5. Obstetrician should be prepared for the possibility of EPH due to massive hemorrhage in patients undergoing caesarean section with these risk factors with appropriate availability of blood and surgical expertise to reduce the maternal morbidity and mortality .

References

1. Nathan HL, El Ayadi A, Hezelgrave NL. Shock Index: an effective predictor of outcome in post partum hemorrhage? BJOG 2015;4(122):268-75.
2. Kwee A, Boto ML, Visser GH. Emergency peripartum hysterectomy: a prospective study in The Netherlands. Eur J Obstet Gynecol Reprod Biol. 2006;124(2):187-92.
3. Yucel O, Ozdemir I, Yucel N, Somunkiran A. Emergency peripartum hysterectomy: a 9 year review. Arch Gynecol Obstet. 2006;274(2):84-87
4. Engelsen IB, Albrechtsen S, Iversen OE. Peripartum hysterectomy – incidence and maternal morbidity. Acta Obstet Gynecol Scand. 2001;80(5):409-12

5. Zelop CM, Harlow BL, Frigoletto FD, Safon LE, Saltzman DH. Emergency peripartum hysterectomy. *Am J Obstet Gynecol.* 1993;168:1443-48.
6. Parro E. Dell amputazione utero-ovarica come complement di taglio cesareo. *Ann leniv Med chir.* 1876:237-289. (cited by Durfee RB: evolution of cesarean hysterectomy. *Clin Obstet Gynecol* 1969; 12(3): 575-89.
7. Mesbah Y, Ragab A, Fiddle E. Emergency peripartum hysterectomy: The experience of a tertiary care hospital. *Middle East Fertility Society Jour* 2013;2(18):89-93.
8. Carvalho JF, Cubal A, Torres S . Emergency peripartum hysterectomy: 10 year review. *International Journal of Scientific Research* 2016; 5(3): 32-33
9. Lovino SM. Emergency peripartum hysterectomy: incidence, risk factors and outcome. *N Am J Med Sci* 2011 ; 3(8):358-361
10. De La Cruz CZ, Thompson EL, O Rourke K. Cesarean Section and the risk of emergency peripartum hysterectomy in high income countries: a systemic review. *Arch Gynecol Obstet* 2015; 292(6): 1201-15
11. D Arpe S, Frnceschetti S, Corsosu R. Emergency peripartum hysterectomy in a tertiary teaching hospital: a 14 years revies. *Arch Gynecol Obstet* 2015 ;291(4):841-7.
12. Fawad A, Islam A, Naz H. Emergency peripartum hysterectomy_ a life saving procedure. *J Ayub Med Coll Abbotabad* 2015;27(1):143-45.
13. Fatima M, KasiPM, Baloch SN. Experience of emergency peripartum hysterectomies at Tertiary Care Hospital in Quetta, Pakistan. *ISRN Obstet Gynecol* 2011;8(54202):1-4
14. Danismen N, Baser E, Torgrul C . Emergency peripartum hysterectomy: experience of a mojour referral hospital in Ankara, Turkey. *J Obstet Gynecol* 2015;35(1):19-21.
15. Allam IS, Gomaa IA, Fathi HM. Incidence of emergency peripartum hysterectomy in Ain_shams University Maternity Hospital, Egypt: a retrospective study. *Arch Gynecol Obstet* 2014; 290(5):891-96.
16. Altamirano KY. Clinical analysis of emergency peripartum hysterectomy in a tertiary care center. *Clin Exp Obstet Gynecol.*2014;41(6):654-8.
17. Obiechina NJ, Eleje GU, Ezebualu IU. Emergency peripartum hysterectomy in Nnewi, Niegaria: a 10 year review. *Niger J ClinPract.* 2012 ; 15(2):168-71.
18. Chen J, Chu H, Na Q. Analysis of emergency obstetric hysterectomy: The change of indications and application of intraoperative interventions. *ZhonghuaFuchanKeZaZhi* 2015 50(3):177-82.13
19. Butwich AJ, Carvalho B, Blumenfeld YJ. Second line uterotonics and risk heamorrhage related morbidity. *Am J Obstet Gynecol*,2015 ; 212(5):642-44
20. Zheng J, Xiong X, Ma Q. A new uterine compression suture for postpartum heamorrhage with atony. *BJOG* 2011;118(3):370-74.
21. Kaya B, Tuten A, Daglar K. B Lynch uterine compression suturs in the conservative management of uterine atony. *Arch Gynecol Obstet* 2015 ; 291(5):1005-14.
22. Alkis I, Karaman E, Han A . The fertility sparing management of post partum haemorrhage:a series of 47 cases of Baken balloon tamponade. *Taiwan J Obstet Gynecol*2015 : 54(3):232-35.
23. Cekmez Y, Ozkaya E, Ocal FD . experience with different techniques for the management of postpartum haemorrhage due to uterine atony: compression sutures, artery ligation and Bakri balloon. *Ir J Med Sci* 2015 ;184(2):399-402.
24. Korejo R, Nasir A, Yasmin S. Emergency obstetric hysterectomy. *J Pak Med Assoc.* 2012 ;62(12):1322-25.
25. TapisizOL, Altinbas SK, Yirci B. Emergency peripartum hysterectomy in a tertiary care hospital in Ankara, Turkey: a 5 year revies. *Arch Gynecol Obstet* .2012 ; 286(5):1131-34.
26. Wan N, Bennett MJ, Walters S. emergency peripartum hysterectomy: a 10 year review at Royal Hospital for woman, Sydney. *Aust N Z J Obstet Gynecol.*2011 ;52(3):210-5.
27. Wong TY. Emergency peripartum hysterectomy:a 10 year revies in a tertiary care obstetric hospital. *N Z Med J.* 2011 4;124(1345):34-39