

## ORIGINAL ARTICLE

# Risk Factors, Indications and Outcome of Emergency Obstetric Hysterectomy: A study performed at Tertiary Care Hospital

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## ABSTRACT

**Background:** Emergency obstetric hysterectomy is the life-saving surgical intervention when all other available measures are unable to control obstetric hemorrhage. In addition to the known indications and risk factors for globally increasing this near miss event, home deliveries by untrained birth attendants is irrefutable cause of obstetric morbidity and mortality

**Aim:** To identify the risk factors and indications for EOH like Pakistan.

**Study design:** Retrospective descriptive study.

**Settings:** OB/GYN department of Lahore General Hospital, PGMI.

**Duration:** Two years, from start of 2020 to the end of 2021.

**Methodology:** All patients having emergency obstetric hysterectomy in Gynae Unit 3, were included in this study. Risk factors and indications for the procedure were recorded. Outcome in the form of morbidity and mortality was reviewed.

**Results:** Out of total 6809 deliveries, 48 patients had EOH and majority were multiparous with age ranging from 20 to 35 years. Complicated home deliveries ending in EOH were 8.32% of the cases. Two third of the patients had one or more previous caesarean sections and 70.8% underwent Caesarean section in the index pregnancy. Most of the women, 81.25%, were unbooked cases. Most common indication for EOH (50%) in our study was uterine atony and 45.81% of the cases had morbidly adherent placenta.

**Conclusion:** Rising trend of caesarian sections leading to placental issues, lack of proper antenatal care and deliveries at inappropriate places are the contributing factors in morbidity and mortality associated with EOH.

**Keywords:** Uterine atony, morbidly adherent placenta, emergency obstetric hysterectomy.

## INTRODUCTION

Emergency obstetric hysterectomy (EOH) is a procedure in which uterus is removed surgically in intra partum or immediate post-partum period<sup>1</sup>. EOH is a life-saving procedure for obstetric hemorrhage being one of the leading causes of maternal mortality, especially in the developing countries<sup>2</sup>.

The incidence of this near miss event is increasing annually at the rate of 8% around the globe<sup>3</sup>. Risk factors for EOH identified by available published data are caesarean section in the index pregnancy, previous caesarean section, older age group, higher parity and lack of antenatal care<sup>4</sup>. Home deliveries by untrained birth attendants are another important risk factor in countries like Pakistan<sup>5</sup>.

EOH is performed when all the conservative measures like oxytocin, uterine massage or compression sutures fail. It can be the only measure to save life of the patient in certain circumstances like morbidly adherent placenta. Leading indications for this procedure include uterine atony, rupture of uterus, placenta praevia/accrete, broad ligament hematoma and puerperal sepsis<sup>6-8</sup>.

One of the important factors leading to the adverse outcome in the mother and fetus is the delay in approaching the required medical care<sup>9</sup>.

The objective of the study was to identify the risk factors leading to EOH and its indications. In the light of information gathered, steps can be devised to improve obstetrical services in order to reduce the prevalence of EOH.

## METHODOLOGY

This retrospective descriptive study was conducted in the Department of Obstetrics & Gynaecology, Postgraduate Medical Institute/Lahore General Hospital, Lahore for a period of 2 years from January 2020 to December 2021. Forty-eight cases of emergency hysterectomy were performed during the study duration. Non probability consecutive sampling technique was used.

**Inclusion criteria:** All female patients those underwent EOH after having vaginal delivery / caesarian section in Lahore general hospital or referred to Lahore general hospital after the delivery or caesarian surgery for uncontrolled postpartum hemorrhage.

**Exclusion criteria:** Patients on anticoagulants after having cardiac stent or surgery and developed uncontrolled postpartum bleeding.

**Data collection procedure:** The approval from the ethics committee of the institute was taken before starting the study. Its policy of the institute to take written informed consent before any intervention especially surgical and more so for the life-saving EOH. We collected the data of the patients including bio-data (name, identity number, medical registration number for identification), patient profile booking status and antenatal records of the patients were studied. Risk factors for EOH like age, parity, mode of delivery in previous pregnancies and of the index pregnancy were noted from the written paper files of the hospital system. Outcome measures like uneventful recovery, morbidity (fever, wound infection, sepsis and coagulopathy etc.) and mortality were taken into account. Duration of ICU care and hospital stay was recorded.

**Data analysis:** All the data was recorded in the proforma devised by the principal investigator. The patients and their relatives were called whenever required while confidentiality of the data was assured. The recorded data was entered in the excel sheet and analyzed by using Microsoft Excel 2016.

## RESULTS

We had total of 6809 births at Lahore General Hospital during two years of the study period. Total vaginal births were 3669. Caesarean sections were 3140. Total EOH performed were 48 which gives the prevalence of 7.05 per 1000 deliveries. Table 1 shows the age groups to which the women belonged in the study. Most of them fall in the age group of 20-30 years (41.67%). Age range of the second large group (37.5%) was between 31 and 35 years. Majority of the women (79.16%) who had EOH, the parity ranged between 2 and 5 as shown in Figure 1.

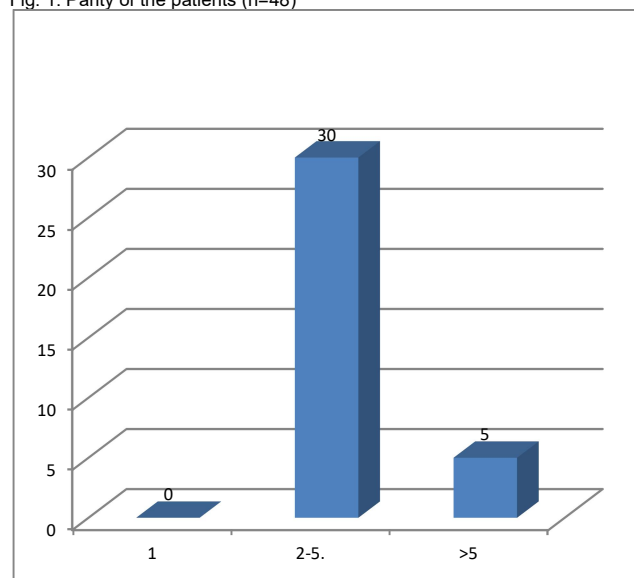
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Table 1: Age of patients (n=48)

Age	n	Percentage
<20	-	-
20-30	20	41.67
31-35	18	37.5
>35	10	20.03

Fig. 1: Parity of the patients (n=48)



A large set of the women in EOH group had the ages between 20 and 35 years and had a parity of two or more. Two third of the patients had one or more previous caesarean sections and 70.8% underwent caesarean section in the index pregnancy [table 2]. Un-booked status was the single largest risk factor identified in these women and 81.25% of the women were un-booked (Table 2).

Table-2: Risk Factors for EOH (n=48)

Risk Factors	n	Percentage
Age 20- 35 years	38	79.1
Parity 2 or higher	46	95.8
Previous C. Section	32	66.6
C. Section in index pregnancy	34	70.8
Un-booked cases	39	81.25

Most common indication for EOH in our study was uterine atony which occurred in 50% of the cases. Second leading cause was morbidly adherent Placenta. Common morbidities which occurred in these patients are shown in table 3. It includes fever [4.16%], hypovolemic shock [8.32%], coagulopathy [8.32%] and visceral injury [8.32%]. Re- laparotomy also accounted for 8.32% of cases.

Table-3: Complications (n=48)

Outcome	n	Percentage
Fever	02	4.16
Wound Infection	02	4.16
Sepsis	00	00
Coagulopathy	04	8.32
Hypovolemic shock	04	8.32
Visceral Injury	04	8.32
Death	00	00

## DISCUSSION

In our study, prevalence of EOH turned out to be 7.05 per 1000 deliveries. It is higher than most of the studies reported in the literature<sup>10,11</sup>. Largest number of patients, in our study who had EOH were of ages from 20 to 35 years. Obviously, these are the peak reproductive years in which women tend to have maximum pregnancies and deliveries. Repeat caesarean sections are also common in this age group. This explains the increased frequency

of EOH in these patients. It is comparable with the study of Chauhan et al<sup>12</sup>. Multiparous women were 95.8% in our study and it's an important risk factor for EOH. It may be due to the reason that multiparous women tend to have previous caesarean sections and uterine trauma which leads to placental problems. Uterine atony occurs more frequently in multiparous women. Chauhan et al recorded the same findings regarding parity<sup>12</sup>. Literature has identified previous caesarean section as a risk factor for EOH. Two third of the patients had one or more caesarean sections in our results. Our result is similar to the findings of the studies conducted by Lone F et al and Choi SJ et al<sup>13-15</sup>.

Regarding antenatal booking, majority of the patients (81.25%) were un-booked and were delivered outside the proper hospitals or had caesarean section in the hospital lacking basic facilities for the obstetric care. They were received by our facility in critical condition for life saving care. Un-booked status is the major factor for adverse outcome and leading to EOH mentioned in the study conducted by Khan B et al<sup>16</sup>. Women who do not seek antenatal care usually belong to low socio- economic status and have poor knowledge about the basic health issues. They tend to have compromised health during pregnancy in the form of anemia and poor nutritional status which further potentiates the adverse outcome in such cases. Uterine atony was the most frequent indication of EOH (50%) in our study. Results are consistent with that of Varras et al<sup>17</sup> whereas another study found morbidly adherent placenta as the major indication for EOH<sup>18</sup>. Hypovolemic shock, visceral injury (urinary bladder, ureter and intestines), coagulopathy and re-laparotomy were the most common complications established in this study (8.32% each). Same results were noted by Kazi S<sup>5</sup>. Other complications were fever, wound infection, paralytic ileus and blood transfusion reactions (4.16% each).

## CONCLUSION

We conclude that major risk factors for EOH, to save the lives of the women, are pregnancy at increasing age, higher parity, un-booked delivery or caesarian sections done at poorly equipped so-called maternity centers / hospitals. Rising trend of caesarean sections contribute to increase in the cases of morbidly adherent placenta and placenta previa thus increasing the frequency of EOH.

**Limitations:** The sample size of the study is quite low (n=48). The cases done by the unit three of the OB/GYN department of the institute were included in the study.

**Suggestions / Recommendations:** Increasing awareness among women regarding the importance of antenatal care, health education and empowering the women can improve the outcome of pregnancy related morbidity and mortality. Health monitoring authorities should have a strict check on so-called maternity care hospitals.

**Conflict of Interest / Disclosure:** There was no conflict of interest  
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**Author's contribution:** **LA:** Conception, design, acquisition, analysis, interpretation of data and manuscript writing, **NS:** Manuscript draft, study design, review of article, **NA:** Literature review and case selection, **AS:** Data interpretation, statistical analysis, **ABS:** Review of article, **AA:** Data collection

## REFERENCES

1. Nwobodo E, Nandi D, Emergency obstetric hysterectomy in tertiary care Hospital in Sokoto, Nigeria. *Annals Med Health Sci Res.* 2012; 2 (1): 37-40.
2. Shah N, Hossain N, Shoaib R, Hussain A, Gillani R, Khan NH. Socio-demographic Characteristics and the Three Delays of Maternal Mortality. *J Coll Physicians Surg Pak.* 2009; 19(2):95-98. doi: 02.2009/JCPSP.9598.[PubMed] [Google Scholar]

3. Tuncalp O, Hindin MJ, Souza JP, Chou D, Say L. The prevalence of maternal Near miss: a systematic review. *BJOG* 2012 May; 119(6):653-661.
4. Akker TVD, Brobbel C, Dekkers OM, Bloemenkamp KWM. Prevalence, Indications, Risk Indicators, and Outcomes of Emergency Peripartum Hysterectomy Worldwide: A Systematic Review and Meta-analysis. *ObstetGynecol*. 2016 Dec; 128(6):1281-1294.
5. Kazi S. Emergency peripartum hysterectomy: A great obstetric challenge. *Pak J Med Sci*. 2018 Nov- Dec; 34(6): 1567-1570.
6. Anita, Wadhwani K. Emergency obstetric hysterectomy. *J Obstet Gynecol India*. 2005;55(2):132-4
7. Zelop C, Harlow B, Frigoletto F, Safon L, Saltzman D. Emergency Peripartum Hysterectomy. *Am J Gynecol*. 1993; 168:1443-8
8. Caesarean Delivery and Peripartum Hysterectomy. In: Cunningham F, Kenneth York: McGraw Hill; 2011: 545-562.
9. Begum S, Nisa A, Begum I. Analysis of Maternal Mortality in a Tertiary Care Hospital to determine causes and preventable factors. *J Ayub Med Coll Abbottabad* 2003; 15(2):49-52
10. Shaikh N, Shaikh S, Shaikh J. morbidity and mortality associated with obstetric Hysterectomy. *J Ayub Med Coll Abbottabad*. 2010; 22(2):100-4.
11. Preetha G, Mini J, Jayasree V. Emergency peripartum hysterectomy for Primary PPH an obstetrician's challenge. *Int J Contemp Med Res*. 2016; 3(5):1265-1267.
12. Chauhan BR et al. *Int J Reprod Contracept Obstet Gynecol* 2017 Nov; 6(11):4950-4952
13. Lone F, Sultan AH, Thakar R, Beggs A. Risk factors and management patterns For emergency obstetric hysterectomy over 2 decades. *Int J Gynaecol Obstet*. 2010; 109(1):12-15.
14. Cieminski A, Dlugolietki F. Placenta previa accrete. *Ginek Pol* 2004; 75:919-25.
15. Choi SJ, Song SE, Jung KL, Oh SY, Kim JH, Roh CR. Antepartum risk factors Associated with peripartum cesarean hysterectomy in women with placenta previa. *Am J Perinatal* 2008; 25:37-41
17. Khan B, Khan B, Sultana R, Bashir R, Deeba F. A ten year review of emergency peripartum hysterectomy in a tertiary care hospital. *J Ayub Med Coll Abbottabad* 2012; 24(1).
18. Varras M, Krivis C, Plis C, Tsoukalos G. Emergency obstetric hysterectomy At two tertiary centers: a clinical analysis of 11 years' experience. *Clin Exp Obstet Gynecol*. 2010; 37(2):117-119.
19. Bakshi S, Meyer BA. Indications for and outcomes of emergency peripartum hysterectomy. A five year review. *J Reprod Med*. 2000; 45(9):733-737.