

# Frequency, Indications and Maternal Outcome in Obstetric Hysterectomy in a Tertiary Care Centre in India

Dilpreet Kaur Pandher, Alka Sehgal, Nupur Aggarwal

## Abstract

The aim of present study is to review the frequency, indications, associated risk factors, maternal morbidity, maternal and fetal mortality associated with emergency obstetric hysterectomy in a tertiary care academic referral centre. A retrospective descriptive analysis from Jul 2005 to Jun 2010 was carried out in a tertiary care academic referral centre. Main outcome measures were frequency, indications, associated risk factors, maternal morbidity, maternal and fetal mortality associated with emergency obstetric hysterectomy. There were 41 cases of obstetric hysterectomy over the study period and the frequency of obstetric hysterectomy was 22.9/10,000 births. The incidence of hysterectomy for vaginal delivery was 0.017% and for caesarean section was 0.318%. Maximum number of patients (36.5%) were in the age group 26-30 years. 60.9% patients were antenatally unbooked emergency cases. It was most common in para two (46.3%) followed by para four or more (26.8). Main indications for obstetric hysterectomy were rupture uterus and postpartum haemorrhage (31.7% each) followed by morbidly adherent placenta (21.9%). All women required blood transfusion, 26 (63.42%) were anaemic, 5 (12.19%) required ICU stay. There was one maternal mortality and varied morbidity pattern. 12 fetal mortalities were noted, including 9 for uterine rupture, 2 for placenta previa in scarred uterus and one in obstructed labor case. Emergency obstetric hysterectomy still remains a life saving procedure and complications can be minimized by timely and thoughtful decision. Unnecessary delay or undue haste increase maternal morbidity.

## Key Words

Obstetric Hysterectomy, Maternal Morbidity, Maternal Mortality

## Introduction

Emergency obstetric hysterectomy (EOH) is one of the life saving procedure performed in gravid uterus or immediate postabortal or postpartum period in cases of intractable hemorrhage due to uterine atony, rupture uterus, placental disorders, uterine perforation and septic abortion. The procedure is usually reserved for the situations where conservative measures fail to control hemorrhage. Obstetric hysterectomy remains one of the obstetric catastrophes. It is associated with increased maternal mortality, considerable morbidity, and it brings an abrupt and usually unwelcome end to a woman's reproductive potential. (1)

In past the most common indication of EOH was atony and uterine rupture. (2) Recent reports show that

abnormal placental adherence and placenta previa is emerging as the major indication for EOH and is likely related to increase in the number of caesarean delivery observed over the past two decades. (3) The high incidence of associated morbidity and mortality is reported from developing countries. (4)

## Material and Methods

A retrospective descriptive analysis of 41 cases of emergency obstetric hysterectomies done for any indication during pregnancy, labor, postabortal or puerperium over a period of five years from Jul 2005 to Jun 2010 was done. Each case record was analyzed in details for maternal characteristics (age, parity, booked or emergency cases etc), indications of hysterectomy,

From the Department of Obst and Gyane, Govt Medical College and Hospital, Sector 32, Chandigarh- 160030

Correspondence to: Dr. Nupur Aggarwal, Department of Obst and Gyane, Govt Medical College and Hospital, Sector 32, Chandigarh- 160030

type of operation performed, intra-operative problems encountered, maternal morbidity and maternal and fetal mortality.

## Results

There were 41 cases of emergency hysterectomies amongst 17,836 deliveries during the study period of five years giving an incidence of 22.9/10,000 births i.e. one in 435 deliveries (Table I). 2 cases underwent hysterectomy following vaginal delivery giving incidence of 0.017% i.e. one in 5,748 vaginal deliveries. 20 hysterectomies were done in caesarean section cases with incidence of 0.318% i.e. one in 314 caesarean section. 13 obstetric hysterectomies were done during laparotomy for rupture uterus and 5 were done for complications of termination of pregnancy in first and second trimester. One hysterectomy on gravid uterus was done for invasive mole. Out of these 41 cases, 19 were pregnancies with previously scarred uterus (13 were previous one caesarean, 5 were previous two caesarean and one was previous hysterotomy). Out of these, eight cases presented with morbidly adherent placenta, six with rupture uterus, two cases had placenta previa in this pregnancy, and one case had broad ligament hematoma and atonic PPH each. One case of previous two LSCS presented with secondary hemorrhage following hysterotomy with tubal ligation in this pregnancy.

*Maternal characteristics (Table 2):* Age: Maximum number of patients (36.5%), who had to undergo hysterectomy were in 26- 30 years of age group, which is peak of the reproductive age. The lowest age recorded was 21 years and the maximum age in study group was 43 years.

*Parity:* Only three patients were primipara while maximum number of patients (65.8%) belonged to parity two or three. One patient was para five and one was para seven. Antenatal booking status: 16 cases were booked for antenatal check-ups at various health centers, out of which five cases were antenatally supervised in our institute, rest were referred as an emergency to us. 25 cases were unbooked for antenatal care.

*Period of gestation:* 21 cases were of term pregnancy, 10 were preterm, five cases were of mid-

trimester abortion (either induced or post-abortion) and one case was at 12 weeks with invasive mole.

*Indication of hysterectomy (Table 3):* Postpartum hemorrhage and rupture uterus were two major indications (n=13, 31.7% each) of emergency obstetric hysterectomy (EOH) followed by morbidly adherent placenta (MAP, n=9 i.e. 21.9%). Mid-trimester abortion cases were 12.1% (n=5) included septic abortion (n=2), perforation in MTP and rupture uterus during induction of abortion (one each) and post hysterotomy with secondary hemorrhage (one case). One case of EOH was of invasive mole in first trimester with massive hemorrhage. Type of hysterectomy: 13 cases (31.7%) underwent total hysterectomy while in 28 patients (68.3%) subtotal hysterectomy was done.

*Intra-operative complications (Table 4):* Two cases with previous LSCS and one case of primary caesarean had bladder injury, which were repaired but out of these one case presented with vesico-vaginal fistula. Gut injury was encountered in one case for which Hartman's procedure was done. One patient went into DIC, which was only maternal mortality reported in our study giving incidence of 2.4%.

*Post-operative morbidity:* Nine cases (24.3%) suffered from febrile illness. Six cases had wound infection and four had generalized septicemia. Five patients were kept in intensive care unit for varying time period of 4 to 12 days. Renal failure, seizures due to electrolyte imbalance and intubation granuloma were the other morbidities reported in one case each.

*Mortality :* There was one maternal mortality during study period out of the 41 cases of EOH due to disseminated intravascular coagulopathy, giving incidence of 2.4%. There were nine fetal mortalities, six in rupture uterus, two in placenta previa and one in obstructed labor cases.

## Discussion

The incidence of EOH in present study is 2.2/1,000, it is similar to the frequency reported by an Indian and Nigerian study. (5,6) Zelop *et al* (3) review the literature regarding overall incidence and found the range to be one in 300 to one in 5000 deliveries, making a rate of 3.3-

**Table 1. Route of Delivery/ Obstetric Complication and Incidence of Emergency Obstetric Hysterectomy (n=41)**

Delivery route/ complication	Total number	No of emergency hysterectomies	Percentage
Total deliveries	17,836	41	0.229
Caesarean sections	6,287	20	0.318
Vaginal deliveries	11,496	2	0.017
Laparotomy for rupture uterus	34	13	38.235
Abortion complications		5	
Invasive mole		1	

than are patients who undergo vaginal delivery. (7,8) Similar findings are observed in our study.

The risk of peripartum hysterectomy increases with the number of prior caesarean deliveries.

The most frequent indications for EOH in present study were rupture uterus and obstetric hemorrhage i.e. placenta previa, atonic, traumatic and secondary postpartum hemorrhage and technical difficulty due to fibroid uterus (31.7% each), followed by morbidly adherent placenta (21.9%), complication of abortion (12.1%) and invasive mole (2.4%), the pattern is quite similar to another Indian study. (9) Other studies have also noted that more than half of the peripartum hysterectomies performed were

**Table 2. Characteristics of Cases Undergone Obstetric Hysterectomy**

Age in years	Number	Percentage
20-25	11	26.83
26-30	15	36.58
31-35	11	26.83
36-40	2	4.88
Above 40	2	4.88
<b>Parity</b>		
1	3	7.32
2	19	46.34
3	8	19.51
4 and above	11	26.83
<b>Period of gestation at the time of hysterectomy</b>		
Term	24	58.54
Preterm	11	26.83
Mid trimester abortions	5	12.19
Invasive mole	1	2.44
<b>Antenatal care booking status</b>		
Booked	16	39.02
Un-booked	25	60.98
<b>Previously scarred uterus (n= 19/41)</b>		
Previous 1 caesarean	13	
Previous 2 caesarean	5	
Previous hysterotomy	1	

0.2/1000 deliveries respectively. The incidence varies over time, depends on the health care settings, and is strongly influenced by caesarean delivery rates. Caesarean delivery is the most important risk factor for peripartum hysterectomy. Those who undergo abdominal delivery are more than six times more likely to require hysterectomy

for uterine atony. Other indications include uterine rupture, morbidly adherent placenta, extension of a uterine incision, leiomyoma, infection and genital lacerations. (4, 8, 10). The incidence of morbidly adherent placenta (MOP) as the indication of obstetric hysterectomy is increasing significantly over the time due to rising

**Table 3. Indication For Emergency Obstetric Hysterectomy**

Indication	Number	Percentage	Categorization	Number	Percentage
<b>Rupture uterus</b>	13	31.71			
<b>PPH</b>	13	31.71	Previous scarred	6	14.63
			Scarred	7	17.07
<b>Primary</b>			Atonic LSCS	7	17.07
			NVD	2	4.88
			Traumatic	2	4.88
			Tech diff d/t fibroid	1	2.44
			Endometritis	1	2.44
<b>Secondary</b>					
<b>Morbid adherent placenta</b>	9	21.95			
<b>Post abortal</b>	5	12.19	Scarred	8	19.51
			Unscarred	1	2.44
<b>Invasive mole</b>	1	2.44	Septic abortion	2	4.88
			Perforation	1	2.44
			Rupture uterus	1	2.44
			Hemorrhage-placenta previa	1	2.44

**Table 4. Morbidity And Mortality Pattern/ Complications**

Intraoperative complications	Number
<b>Urinary Bladder injury</b>	2
<b>Gut injury</b>	1
<b>DIC</b>	1
<b>Maternal death</b>	1
<b>Immediate postoperative complications</b>	
<b>Febrile morbidity</b>	9
<b>Wound infection</b>	6
<b>ICU stay</b>	5
<b>Sepsis</b>	4
<b>Renal failure</b>	1
<b>Seizures (electrolyte imbalance)</b>	1
<b>Intubation granuloma</b>	1
<b>Delayed complications</b>	
<b>Sub-acute intestinal obstruction</b>	2
<b>Secondary hemorrhage</b>	1
<b>Vescicovaginal fistula</b>	1
<b>Intra-uterine death of fetus</b>	
<b>Rupture uterus case</b>	6
<b>Placenta previa case</b>	2
<b>Obstructed labor case</b>	1

incidence of caesarean section. According to a recent study<sup>1</sup> of the hysterectomy cases with a diagnosis

recorded as accreta, 18% accompanied a primary caesarean delivery and 82% had a prior procedure, the association observed is similar to that in the present study.

Subtotal hysterectomy was the commonly performed surgery in our study as was in other studies (4, 11) which may be due to the instability of maternal condition requiring a simpler and speedy procedure. A subtotal hysterectomy may control hemorrhage successfully in cases of uterine rupture or atony. If there is no cervical involvement, a subtotal may be technically easier but may not reduce complication rates.(11) In cases of pathological placentation, particularly involving the cervix, a total hysterectomy is required to control the hemorrhage, which is surgically more difficult and more likely to be associated with maternal morbidity if placental localization involves the bladder. (10,12) The present study re witnesses the previous observations that EOH is associated with high perioperative morbidity and mortality. The maternal mortality in our study was 2.4% which is decreased as compared to previously reported in various Indian studies (9, 13) i.e. 9.7% and 9.3% respectively

but very high as compared to the developed countries e.g. 1.6% and nil.1, 3 High mortality may be due to delay in arrival to hospital as in most of the developing countries health care system is poorly developed, most of the patients were un-booked, reached the hospital from some referral centres.(4) Obstetric hysterectomy is associated with extensive blood loss and need for higher number of transfusions (3, 8). All the patients in present study required blood transfusion as in other studies.(4, 14) Majority of the complications observed were febrile morbidity, septicemia, shock, wound infection, urinary tract injuries and DIC as reported in other studies.(1, 3, 15)

Newer alternatives to hysterectomy: In recent years, a number of surgical techniques have been pioneered to avoid hysterectomy in obstetrics. A meta-analysis found four newer techniques to be equally effective in controlling hemorrhage. The success rates for arresting postpartum hemorrhage were 84.0% for balloon tamponade, 90.7% for arterial embolisation, 91.7% for compression sutures, 84.6% for pelvic devascularisation (including uterine or internal iliac artery ligation). The choice of measure will be influenced by the availability of expertise.(16)

Obstetric hysterectomy is a dangerous though life saving technique that needs experienced surgeons to minimize its potential complications. The number of OH for atonic hemorrhage will decrease with more effective use of oxytocics, the use of guidelines and the introduction of new surgical techniques. Uterine rupture cases will decline with close supervision of labor in women especially those with previous caesarean section, and with timely operative intervention.

The age of the rising caesarean delivery rate now brings obstetricians with increasing frequency - the challenge of caesarean hysterectomy for morbidly adherent placenta. Obstetricians also have a responsibility to take a woman's long term reproductive outcomes into consideration when they are considering primary caesarean delivery in the absence of sound medical indications.(17)

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