

Repeat Cesarean Section: A Major Risk Factor for Peripartum Hysterectomy

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Abstract

Background: The overall annual incidence of caesarean delivery in Pakistan has been steadily rising over the past two decades from 14% in 2012-13 to 22% in 2017-18. Primary caesarean often leads to repeat caesareans, which may result in increased chances of morbid adherence of placenta. Now it has become proportionally a major cause of maternal morbidity and mortality.

Objective: To determine the frequency, major indication of surgery, mortality and morbidities associated with obstetric hysterectomies at a tertiary care hospital.

Study type settings & duration: The retrospective descriptive study was conducted in Gynaecology and Obstetrics unit I of Jinnah Hospital Lahore over a period of four years from January 2016 to December 2019. All cases of obstetric hysterectomy during this time were included in this study.

Methodology: Medical records of all pregnant admitted patients for delivery requiring an emergency peripartum hysterectomy (EPH) were included. All files were reviewed for key variables to be evaluated. Each case record was studied in detail for variables like indications, maternal profile, type of operation performed, maternal morbidity and mortality. The data was analyzed using SPSS version 21.0 and data was presented as frequencies and percentages.

Results: A total of 96 women underwent obstetric hysterectomy during study period. Out of these 60% had morbid adherence of placenta making it the commonest indication of hysterectomy. Women with previous cesarean section had higher risk of obstetric hysterectomy (73%) than those who had vaginal delivery (27%). Highest incidence found among grand multigravidas, in age group of 30-39 years.

Conclusion: Morbidly adherent placenta is one of the leading causes of obstetric hysterectomy. Rising caesarean section rate is one of the major risk factor for surgery. Incidence of cesarean section can only be reduced by health education, provision of quality antenatal care, early referral of high-risk cases and implementation of evidence-based guidelines.

Key words: Postpartum haemorrhage, peripartum hysterectomy, placenta accreta, cesarean section

Introduction

Postpartum hemorrhage (PPH) is a major cause of maternal mortality and morbidity. Obstetric hysterectomy is the surgical removal of uterus at the time of C-section, following C-section, immediately after vaginal delivery or during peripartum to save

maternal life.¹ This life saving procedure has been in use for more than 100 years. Edward Poro (1876) published the first case report of this procedure. It is usually performed in face of life threatening and unrelenting obstetric hemorrhage.² However the surgery is by nature unplanned and performed expeditiously. According to the recent reports, 0.20 to 5.09 of every 1000 postnatal women across the globe have undergone an obstetric hysterectomy.³

In the past, the most common cause of uterine hemorrhage was uterine atony or trauma, however with the availability of potent uterotonic agents and use of conservative surgical techniques, placenta previa and morbid adherence of placenta is emerging as the commonest indication for obstetric hysterectomy.⁴ Scarred uterus due to previous cesarean section, myomectomy, dilatation and curettage, multiparity and older age group increases risk of abnormal placentation.⁵ As narrated by

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Authors Contribution

SY & AZ conceptualized the project. SY & ST did the data collection and drafting, revision & writing of manuscript. Literature search was done by BB & AZ. Statistical analysis performed by SY & BB.

Clarke et al incidence of placenta previa rises from 0.5% to 3.9% after one caesarean section and up to 10% after four caesarean sections. The incidence of placenta accreta is 5% in patients with placenta previa and only one caesarean scar, however after four caesarean sections placental adherence increases to 67%.⁶ Against this background, the present study was undertaken with an aim to evaluate the rising frequency, maternal profile, indications and outcome of obstetric hysterectomies in Pakistan.

Methodology

This retrospective descriptive study was conducted on the patients requiring an emergency peripartum hysterectomy (EPH) over period of four years from January 2016 to December 2019. Emergency peripartum hysterectomy is operation performed in cases whose bleeding was not prevented by conservative approaches in 24 hours after delivery. Case record of all patients who underwent peripartum hysterectomy during the study period was explored in detail with special emphasis on indications, maternal profile, type of operation performed, maternal morbidity and mortality and also fetal outcome. Other variables studied were socioeconomic factors, obstetric care provided and transport delays.

A total of 96 cases who underwent obstetric hysterectomy after delivery were selected. Key variables to be evaluated in the study were sorted. Data analysis was done using SPSS for Windows version 21.0. Results presented as frequencies and percentages. *p*-value if less than 0.05 was considered significant.

The Approval for the study was taken from ethics review committee of Jinnah Hospital, Lahore.

Results

During the study period, there were 18,393 births. Out of 96 cases of emergency hysterectomies, 27% of women had hysterectomy after vaginal birth and 73% following abdominal delivery (Table-1). Most of the women (73%) were in age group of 30 -39 years and 22% were 20-29 years of age. Mean age of cases under study was 27.115±5.32 years and minimal age was 18 years and maximum was 44 years. Among the cases studies 51% of women were grand multigravida, 46% were G2-G3 and only 3% were primigravida. Most women were un-booked, belonging to the low socioeconomic group, lack of obstetric care and delayed transport were amongst the major

contributing factors for high morbidity and mortality in these patients.

Table 1: Demographic and obstetrics profile of cases under study.

Variables n= 96	Frequency	Percentage
Age Mean=27.115 SD= 5.32 Min= 18 years Max = 44 years		
20 - 29 years	21	21.9
30 - 39 years	70	72.9
> 40 years	5	5.2
Parity		
Primigravida	3	3.1
G2 - G4	44	45.8
Grand Multigravida	49	51.0
Educational Status		
Primary	48	50.0
Matric	10	10.4
Graduation	1	1.0
Illiterate	37	38.5
Condition at arrival		
Stable	35	36.5
Unstable	38	39.6
Shock	23	24.0
Mode of delivery		
SVD with prior vaginal delivery	23	24.0
SVD with prior LSCS	3	3.1
LSCS with prior vaginal delivery	4	4.2
LSCS with prior LSCS	64	66.7
LSCS with no prior delivery	2	2.1
Place of delivery		
Jinnah Hospital	71	74.0
Other hospitals/Home	25	26.0
Types of hysterectomy		
Total hysterectomy	92	96.0
Subtotal hysterectomy	4	4.0

Out of 96 cases of emergency hysterectomies, 67 (69%) had previous caesarean delivery. Morbid adherence of placenta was the commonest of hemorrhage leading to emergency hysterectomy in 60% of these women. Other causes of hysterectomy were uterine atony and rupture (Figure).

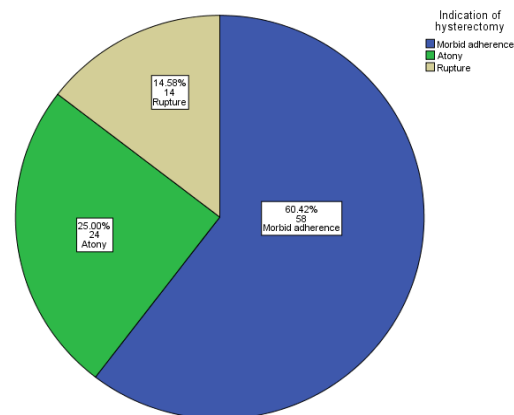


Figure: Indications of Peripartum hysterectomy among cases under study.

Table 2: Major morbidities in patients undergoing peripartum hysterectomy.

Morbidities		Place of delivery				Chi-square p value
		Jinnah Hospital		Other hospitals		
		Frequency	Percentage	Frequency	Percentage	
Blood transfusion	Yes	59	72.0	23	28.0	.278
	No	12	85.7	2	14.3	
Prolonged hospital stay	Yes	24	72.7	9	27.3	.040
	No	47	74.6	16	25.4	
ICU admission	Yes	18	69.2	8	30.8	.414
	No	53	75.7	17	24.3	
Bladder Injury	Yes	15	78.9	4	21.1	.520
	No	56	72.7	21	27.3	

Table 3: Details of maternal deaths in women who underwent peripartum hysterectomy.

		Mortality				Chi-square p value
		Yes		No		
		Frequency	Percentage	Frequency	Percentage	
Age	20 - 29 years	4	19.0	17	81.0	.060
	30 - 39 years	3	4.3	67	95.7	
	> 40 years	0	0.0	5	100.0	
Parity	Primigravida	1	33.3	2	66.7	.016
	G2 - G4	0	0.0	44	100.0	
	Multigravida	6	12.2	43	87.8	
Condition	Stable	0	0.0	35	100.0	.000
	Unstable	0	0.0	38	100.0	
	Shock	7	30.4	16	69.6	
Mode of delivery	SVD with prior vaginal delivery	5	21.7	18	78.3	.003
	SVD with prior LSCS	0	0.0	3	100.0	
	LSCS with prior vaginal delivery	0	0.0	4	100.0	
	LSCS with prior LSCS	1	1.6	63	98.4	
	No prior delivery	1	50.0	1	50.0	
Place of delivery	Jinnah Hospital	2	2.8	69	97.2	.004
	Other hospitals	5	20.0	20	80.0	
Types of hysterectomy	Total hysterectomy	7	7.4	88	92.6	.778
	Subtotal hysterectomy	0	0.0	1	100.0	
Indication of hysterectomy	Morbid adherence	2	3.4	56	96.6	.198
	Atony	3	12.5	21	87.5	
	Rupture	2	14.3	12	85.7	
Bladder Injury	Yes	3	15.8	16	84.2	.112

Multiple transfusions were done in eighty-two (85%) patients and there were seven maternal deaths among women who underwent hysterectomy (Table-2). Details of women who died are shown in Table-3.

Discussion

This retrospective descriptive study shows that 73% of the women who underwent peripartum hysterectomy had previous cesarean section while 27% of women who had vaginal birth. Morbid adherence of placenta, a complication of repeat cesarean section was found in 60% of these cases.

Cesarian Section (CS) rate is constantly increasing both in the developed and the developing

countries for various reasons. Patient preferences, advances in anesthesia, blood bank facilities and intensive care backup have made cesarean section a safer and painless alternative to labor. Worldwide incidence of cesarean section varies from 1.4% to 56.4%. Highest rates are in Latin America (40.5%) followed by North America (32.3%), Europe (25%), Asia (19.2%). From 1990 to 2014 caesarean section rate almost tripled from 6.7% to 19.1%⁸ During the study period of four years there were 18,393 births, give numbers as well 54% of births were vaginal and 46% were abdominal. High rate of caesarean delivery is mainly due to the reason that our hospital is a tertiary care hospital receiving referred patients from lower levels of care and a number of private sector hospitals and maternity homes. A study conducted at Obstetrics

and Gynecology Department, Pak Emirates Military Hospital (PEMH), Rawalpindi, found CS rate as high as 54%.⁹

In this study 73% of the women were in 30-39 years age group also mentioned age group for survived and died women. The incidence of obstetric hysterectomy is 5.21 per 1000 deliveries during study period. The incidence of emergency peripartum hysterectomy varies in different countries and even among institutions in the same country from 0.24 to 5.09 per 1,000 deliveries.¹⁰ A similar study conducted in Civil hospital Karachi also had 5.6 obstetrics hysterectomies per 1000 deliveries.¹¹ However a review of case series over a period of ten years in a tertiary teaching hospital as ours in Portugal shows 0.41 per 1,000 deliveries (0.04%).¹²

Morbid adherence of placenta was the commonest cause of hemorrhage leading to emergency hysterectomy (60%) and there is previous cesarean delivery in 67 cases (69%) in the current study. A changing trend in indications for obstetric hysterectomy revealing abnormal placentation as the primary cause is found in many studies.^{13,14} PPH-related hysterectomies were 15 times higher in women who delivered vaginally and who had previously undergone CS than in women who delivered vaginally without a previous CS. Total hysterectomy was done in 96% of cases, which is comparable to the 89% frequency of total hysterectomy in Amos et, al study.¹⁵

Maternal mortality is 7.29% in our study is higher than in developed world^{16,17} but comparable with rate reported in other studies in Pakistan¹⁵ and other developing countries.¹⁸ Condition of patient at the time of initial presentation to the hospital, deteriorating condition at the time of performing surgery profoundly affects the outcome of patient. All seven patients who expired presented in a state of shock. Moreover poverty, no antenatal care, illiteracy, injudicious use of oxytocin, lack of transportation, further adds to morbidity and mortality.

Morbidly adherent placenta is now emerging as one of the leading causes of obstetric hysterectomy. The most important risk factor for morbidly adherent placenta is previous cesarean section. Rising caesarean rates in the population is going to escalate this risk factor for obstetric hysterectomy.

All these facts point to the need of the hour that, we have to reduce our caesarean rates, health education for women should be a prime focus, considering the educational interventions and support programs to comprehensively counsel women about the risks of primary caesarean

delivery and against caesarean delivery without a specific medical indication. Implementation of evidence-based clinical practice and guidelines, improving antenatal care and early referral of high risk cases to specialized health care centres will also help us to reduce the caesarean rates.

Conflict of interest: None declared.

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