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Original Research Article

Peripartum hysterectomy: prospective observational study in a tertiary care centre of north India

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ABSTRACT

Background: Emergency peripartum hysterectomy is a vital surgical procedure performed at the time of vaginal or caesarean delivery or in the immediate postpartum period in cases of intractable postpartum haemorrhage unresponsive to other conservative measures. Such hemorrhage may be due to atonic uterus, uterine trauma, coagulation disorders, abnormal placentation, not treatable by conservative measures.
Methods: This study was conducted for a time period of 1.5 years from March 2016 to September 2017, in the department of Obstetrics and Gynecology, GMC Srinagar, Jammu and Kashmir, India. All such patients in our hospital were included in this study. The incidence, risk factors, age, parity, gestational age, indications for performing hystrectomy, pre and post-operative complications were studied.
Results: The incidence was 3.2/1000 deliveries. The average age of the patients in our study was 31.18±2.80 years. Most patients were delivered at gestation of 37-38 weeks (61.17%). Among the patients undergoing peripartum hysterectomy 87.38% had caesarean delivery and 12.62% had vaginal delivery. The commonest indication of peripartum hystrectomy in our study was abnormal placentation (67.96%) with accreta accounting for most of these cases (53.40%).
Conclusions: The incidence of peripartum hystrectomy in our centre has increased with time, which can be accounted by increase in the rate of caesarean sections over time which has led to the emergence of morbidly adherent placentation as the commonest risk factor for peripartum hysterectomy.

Keywords: Peripartum hysterectomy, Postpartum haemorrhage, Placenta accrete

INTRODUCTION

Emergency peripartum hysterectomy is a marker of severe maternal morbidity and a life-saving surgical procedure when uncontrollable or massive postpartum haemorrhage sets in.[1] There is a range of difference in the incidence and occurence of peripartum hysterectomy in different parts of world. These differences are due to different obstetric standards and services available, awareness of health and contraception. In the developed countries the increase in the incidence of peripartum hysterectomy has been attributed to the increase in caesarean section rates, associated with rise in the incidence of placenta previa and morbidly adherent placenta, and the increase in multifetal pregnancy rates associated with assisted reproductive technology. On the other hand, lower socioeconomic status, non-availability of transportation facilities, more number of unbooked pregnancies and lack of skilled birth attendants as well as lack of adequate health facilities are the reasons of higher incidence of peripartum hysterectomy in the developing countries.[2]

Emergency peripartum hysterectomy, according to definition, is a vital surgical procedure performed at the time of vaginal or caesarean delivery, or in the immediate post delivery period in case of intractable postpartum haemorrhage unresponsive to other conservative measures. Such hemorrhage may be due to, atonic uterus, uterine trauma, coagulation disorders, abnormal placentation, not treatable by conservative measures.[3]

Postpartum haemorrhage

The current RCOG Green-Top guideline classifies PPH as: minor when estimated blood loss is 500-1000 ml; moderate when estimated blood loss is between 1000 and 2000 ml; and severe, when estimated blood loss exceeds 2000 ml (Arulkumaran et al, 2009).[4,5]

This study aimed to study the incidence, risk factors, various indications for emergency peripartum hysterectomy and explore the preventable or modifiable risk factors, if any. Also, to study the maternal outcome in these cases and to evaluate the post-operative complications in cases of peripartum hysterectomy.

METHODS

It was a prospective observational study. The present study was carried out for a time period of 1.5 years from March 2016 to September 2017 in the Department of Obstetrics and Gynaecology, Government Medical College Srinagar, Jammu and Kashmir, India. All patients of peripartum hysterectomy in our hospital were included in this study.

An informed and written consent was taken from all the patients for participating in the study. A detailed history was taken as per the proforma which was:

Socio demographic status: residence, social status, education, income was taken. Maternal information regarding age, parity, period of gestation, mode of previous delivery, uterine curettage in previous abortions, ante partum bleeding if any, mode of delivery and intrapartum complications were recorded on a proforma. Detailed general physical, systemic and local examination was recorded on the proforma. Indication of hystrectomy, pre and post-operative complications and maternal morbidity were studied.

Statistical analysis

All categorical variables were analysed using the chi-square test and all continuos variables were analysed using the t test. All cases were followed for a period of one month.

RESULTS

In the time period under review, 32108 women were delivered at our hospital and 103 peripartum hysterectomies were done, so the incidence of peripartum hysterectomy was 3.2/1000 deliveries.

The age range of all the subjects undergoing peripartum hysterectomy was 25-36 years, with 64.08% of the patients between 30-35 years and 6.80% above the age of 35 years (Table 1).

Table 1: Age distribution among study patients.

Age group (years)	No.	Percentage
<30	30	29.12
30-35	66	64.08
> 35	7	6.80
Total	103	100

Mean±SD; Range: 31.18±2.80; 25-36

An 54.37% of the patients were para2, followed by para1 (16.50%), and para3 (15.53%) (Table 2).

Table 2: Parity among study patients.

Parity	No.	Percentage
Primi	0	0
Para 1	17	16.50
Para 2	56	54.37
Para 3	16	15.53
> 3	14	13.60
Total	103	100

Mean±SD; Range: 2.38±1.24; 1-9

The 61.17% of the patients delivered at gestation of 37 - 38 weeks while only 7.77% had gestational age of less than 35 weeks (Table 3).

Table 3: Gestational age (in weeks) among study patients at delivery.

Gestational age at delivery (weeks)	No.	Percentage
< 35	8	7.77
35-36	17	16.50
37-38	63	61.17
> 38	15	14.56
Total	103	100

Mean±SD; Range: 37.05±1.81; 30-39

Table 4: Various risk factors among study patients.

Risk factor	No.	Percentage
1 CS	9	8.74
2 CS	34	33.01
3 CS	8	7.77
DNC	1	0.97
CS + DNC	25	24.27
Multiparity (≥ para 3)	17	16.50
No risk factor	9	8.74
Total	103	100

Table 5: Type of delivery in study subjects.

Type of delivery	No.	Percentage
Normal vaginal delivery (NVD)	13	12.62
Caesarean section (CS)	90	87.38
Total	103	100

Table 6: Indications for peripartum hysterectomy.

Indication for hystrectomy	No	Percentage
Abnormal placentation	70	67.96
Accreta	55	53.40
Increta	5	4.85
Percreta	10	9.71
Abruption placentae	5	4.85
Uterine rupture	5	4.85
Postpartum haemorrhage	23	22.34
Total	103	100

The 33.01% of patients had history of 2 caesarean sections, 8.74% had 1 previous caesarean section, and 7.77% had previous 3 caesarean sections (Table 4). 25 cases were recorded previous DNC and caesarean section (24.27%). Multiparity (≥ para 3) was noted in 16.50% of the patients.

Majority of patients (87.38%) were delivered by C. section only 12.62% of patients had delivered by vaginal route (Table 5).

The commonest indication for peripartum hysterectomy was abnormal placentation (67.96%) followed by by abruptio placentae (4.85%) and uterine rupture and PPH (Table 6).

Table 7: Intra-operative complications.

Intra-operative complications	No	Percentage
Massive haemorrhage	12	11.65
Hemorrhagic shock on ionotropic support	7	6.80
Internal iliac ligation	5	4.85
Bladder injury/ bladder repair	10	9.71
Cardiac arrest	2	1.94
No intra-operative complication	79	76.70

Massive hemorrhage was the most common intra-operative complication (11.65%), out of which 6.80% developed hemorrhagic shock on table and were put on ionotropic support. Internal iliac ligation was done in 4.85% cases. Bladder injury occurred in 10 cases (9.71%), 2 patients suffered from cardiac arrest (1.94%) and the rest of the patients had no intra-operative complication (76.70%) (Table 7).

Anemia (Hb <7 g/dl) in 23.30% and prolonged catheterisation (>7 days) in 30.10% were the two most common postoperative complications in our study followed by febrile morbidity seen in 15 patients (14.56%). 75.73% of the patients were admitted to ICU for hemodynamic monitoring. Two patients had suprabubic catheterisation for 21 days (1.94%) and 3 patients (2.91%) developed wound soakage in the postoperative period. DIC and renal failure was seen in 2 cases (1.94%). Re-exploration was done in 4 patients (3.88%) who developed hemoperitoneum in the postop period. Only one case of maternal mortality was noted (0.97%) that died of cardiac arrest on the 12th postoperative day (Table 8).

Table 8: Maternal morbidity and post-operative complications.

Post-operative complications	No	Percentage
Anaemia (Hb < 7 gm)	24	23.30
Wound infection	3	2.91
Febrile morbidity	15	14.56
Haemoperitoneum	4	3.88
Prolonged catheterization (>7 days)	31	30.10
Supra pubic catheterization	2	1.94
ICU admission	78	75.73
Fistula formation	0	0
DIC	2	1.94
Renal failure	2	1.94
Maternal death	1	0.97
Reexploration	4	3.88

DISCUSSION

Peripartum hysterectomy is a vital procedure in cases of intractable obstetric hemorrhage. During the study time period, there were 32108 births, a total of 103 periparum hysterectomies were performed, thereby making the incidence of 3.2/1000 births in our tertiary care hospital. There is marked variation in the rate of peripartum hysterectomy worldwide due to different level of sophistication in obstetric health care. A lower incidence of 0.33/1000 has been reported in Netherlands (Zeteroglu et al), 0.5/1000 in Saudi Arabia (Tarik et al, 2003) and 1.43/1000 in USA (Kwee et al, 2006), while a higher incidence of 4.2/1000 deliveries has been reported in Pakistan (Nusrat Nisar et al, 2008) , 5.09/1000 in Turkey (Bai et al, 2003) and 5.7/1000 in Bangladesh (Mahbuba et al 2014).[6-8,2,9,10]

Majority of the subjects were aged between 30-35 years (64.08%) with mean of 31.18±2.80. Similar age group was described in the study by Whiteman et al (32.3 years).[11]

Most of the patients were para 2 (54.37%) followed by P1 (16.50%), and P3 (15.53%) which is favourable with the study of Jayaram et al (2016).[12] Although the risk of caesarean hysterectomy increases with increasing parity, majority of cases in our study were para 2 and only 15.53% were para 3. This is because the number of patients admitted with us as parity 3 or more is much less than the number of patients with lesser parity due to increasing

domain of utilization of family planning services over time.

Most of the patients delivered at gestational age of 37- 38 weeks (61.17%). Only 8 patients (7.77%) had gestational age of less than 35 weeks and 15 patients (14.56%) had gestational age of more than 38 weeks. Similar gestational age was seen in majority of patients in study by Jayaram et al (2016).[12]

The major risk factor in the study was previous caesarean section (49.52%) with previous one C/S 8.74%, previous 2 caesarean sections 33.09% and previous 3 caesarean sections 7.77%. Only one case of previous DNC in our study underwent peripartum hysterectomy (0.97%) and 24.27% of the patients had previous CS+DNC as a risk factor. Zahn & Yeomans in their review of PPH recorded previous uterine curettage as a risk factor of abnormal placentation (accreta).[13]

A total of 90 cases (87.38%) underwent peripartum hysterectomy after caesarean, and 13 cases (12.62%) had peripartum hysterectomy after vaginal delivery. These results in the study are close to the observation reported by the United Kingdom Obstetric Surveillance System (UKOSS).[14]

The most common indication for hystrectomy in this study was abnormal placentation (67.96%) with accreta accounting for most of these cases (53.40-%), followed by percreta (9.71%) and increta in 4.85% of the patients. Other indications were uterine atony (PPH) in 22.34%, uterine rupture (4.85%) and abruption in 4.85%. Similar indications were reported by Cynthia et al (2010) with accreta being the commonest indication (38%) followed by atony (34%).[15] Atonic PPH and placenta accreta syndrome are the most common indications in developed countries. In contradiction to our study, uterine rupture and PPH account for most of the cases of peripartum hysterectomy in developing world. Our scenario being similar to that in developed countries is a false satisfaction and is attributable to the alarmingly increasing rate of caesarean section in our set up and early resort to hysterectomy and inability to proceed with all the conservative measures to control the hemorrhage due to the lack of technical expertise and proper infrastructure .A study done at our hospital in 2014-2015 showed the caesarean section rate to be 60.08% in that year (Rizvi et al).[16]

Massive hemorrhage was the most common intra-operative complication (11.65%), out of which 6.80% developed hemorrhagic shock on table and were put on ionotropic support. Internal iliac Artery was ligated in 4.85%. Bladder injury occurred in 10 cases (9.71%) out of which 7 were due to percreta, and 3 accreta. Bladder injury occurred in 9% patients in study by Zelop et al and in 8.8% in the study by Yucel et al which is almost similar to our study.[17,18]

Anemia (Hb <7 g/dl) (23.30%) and prolonged catheterisation (>7 days) 30.10% were the two most common postoperative complications in our study followed by febrile morbidity seen in 15 patients (14.56%). All the study patients received blood transfusion, with an average amount of 1393.20±1.53 ml. Two patients had suprabubic catheterisation for 21 days (1.94%) and 3 patients (2.91%) developed wound soakage in the postoperative period. Re-exploration was done in 4 patients (3.88%) who developed hemoperitoneum in the postop period. Only one case of maternal mortality was noted which was referred as a case of abruption in shock to our centre (0.97%). The patient underwent peripartum hysterectomy, was on ionotropic support intraoperatively later developed AKI, DIC with multiple organ dysfunction and died of cardiac arrest on 12th postoperative day. The post-operative complications were almost comparable to a similar study by Machado LSM.[19]

CONCLUSION

In conclusion, abnormal placentation, uterine atony, massive hemorrhage from abruption placentae, and rupture uterus are leading indications of peripartum hysterectomy in this study. The incidence of peripartum hystrectomy in our centre has increased with time, which can be accounted by increase in the rate of caesarean sections over time which has led to the emergence of morbidly adherent placentation as the commonest risk factor for peripartum hysterectomy. As the history of past Caesarean delivery and placenta accreta are most common risk factors for peripartum hysterectomy, awareness must occur regarding the decision of performing caesarean section in index pregnancy and women education should be promoted regarding the benefits of vaginal delivery and risks of caesarean section.

Recommendations

The present and related studies found that peripartum hysterectomy in itself is the end result of obstetric complications where to save a mothers life, the uterus is taken out irrespective of her parity and family status. There is in fact need to give feedback to the referring hospitals at periphery on any patient referred with obstetric complications whether or not the complication culminated in peripartum hysterectomy highlighting in such feedbacks the missed opportunities in the hope that such opportunities will be identified timely in future.

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