Research Article

A study of maternal mortality and morbidity observed in peripartum hysterectomy in a tertiary care center

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Abstract

Introduction: Peripartum hysterectomy is considered one of the most devastating complications in obstetrics resulting in high costs to health care system and adverse outcomes for women desiring to maintain fertility. Maternal moratilty rates associated with emergency hysterectomy ranges from 0-30% with higher rates in regions with limited medical and hospital resources. Even in countries with low maternal mortality rates, associated maternal can be high due to hemorrhage, blood transfusion, DIC, infection and potential injury to adjoining viscera. **Amis and Objectives:** To study the maternal mortality and morbidity observed in peripartum hysterectomy in a tertiary care center **Material and Methods:** The present observational study was conducted in the Post Graduate Department of Obstetrics and Gynecology, S.M.G.S Hospital. Government Medical College, Jammu, from November 2012 to October 2013. Total 40 cases of peripartum hysterectomy were enrolled in the study duration. A detailed history was taken of all cases. Maternal characteristics such as age, parity, gestational age, previous cesarean delivery, previous uterine curettage, history of ante partum bleeding, obstetric complication, mode of delivery and intrapartum complications were recorded on a prestructured proforma. Additional procedures performed prior to contemplating hysterectomy, need for blood and component transfusion, the indications for performing surgery, type, operating time, pre and post operative complications and number of hospitalization days were obtained. Post- operative examination of all cases was done. Monitoring chart in terms of vitals, input including crystalloids, colloids, blood and blood components and urine and drain site output were noted. All investigations done on admission for booked cases and before surgery for both booked and referred cases were also recorded on proforma. The collected data was displayed in percentages and represented with the help of appropriate tables and diagrams. **Results:** The survival rate observed after periparum hysterectomy was 90%. Four cases out of total 40 cases died in the due course of treatment. 45% patients underwent LSCS prior to hysterectomy. Most common indication of peripartum hysterectomy was rupture uterus accounting for 37.5% of the total hysterectomies. Morbidly adherent placenta was found to be the second most common cause. In 67.5% patients one or more fertility preserving, conservative procedures were tried before hysterectomy. All the patients were noted to have received blood transfusion during or in the immediate postoperative period where indicated. Almost all our patients (90%) experienced some form of complication. Wound infection was the most common complication, seen in 19 (47.5%) patients. Wound dehiscence occurred in 3 patients for which re-suturing were required. Three patients required re-laparotomy for post – hysterectomy hemoperitoneum. Maternal mortality occurred in 4 (10%) patients. **Conclusion:** Thus we conclude that although peripartum hysterectomy is a rare condition, it represents a catastrophic and sometimes fatal to a pregnancy for any woman. Wound infection, bladder injury, anesthesia complication and re-laparotomy were the common complication observed leading to high morbidity rate.

Keywords: peripartum hysterectomy, survival rate, rupture uterus, wound infection, bladder injury.

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Peripartum hysterectomy is considered one of the most devastating complications in obstetrics resulting in high costs to health care system[1,2] and adverse outcomes for women desiring to maintain fertility. Maternal mortality rates associated with emergency hysterectomy ranges from 0-30% with higher rates in regions with limited medical and hospital resources.[3] Even in countries with low maternal mortality rates, associated maternal can be

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high due to hemorrhage, blood transfusion, DIC, infection and potential injury to adjoining viscera.[4,5,6] Risk factors for Peripartum hysterectomy have evolved to reflect complications resulting from rising trend in caesarean deliveries.[7,8,9,10] These risk factors include placenta previa, placenta accrete, increta and percreta and uterine scar rupture.[11] Despite its low frequency, the rising caesarean delivery rate in recent years and the increasing population with a scarred uterus may indirectly increase the incidence of peripartume hysterectomy and its complications. Consequently, the obstetrician will be faced with the dilemma concerning the choice of a conservative compared with an aggressive management approach. This choice should weigh the woman's desire for preserving fertility compared with the risk that further delay in the procedure may lead to more severe morbidity or maternal death.[11] The most frequent complication of peripartum hysterectomy is excessive blood loss and need for transfusion. Only part of this blood loss is attributable to the procedure itself. The extensive blood loss is related mainly to the primary indications for hysterectomy and delay in deciding to carry out hysterectomy. Oedematous tissue, adhesions from previous surgery and the inherent risk for coagulopathy may contribute to blood loss.[5,12,13,14] Blood transfusion is therefore the most common adjunct therapy and therefore increases the risk of blood transmitted diseases such as Hepatitis B and C and HIV. The average number of units of blood transfused in cases of accrete is 6.6 units with some cases requiring over 20 units of blood.[13,15] At least 8-12 units of blood must be made available in suspected cases of accrete. The next most frequently reported complication is urological injury which affects the bladder or the ureters.[13,16]

AMIS AND OBJECTIVES

To study the maternal mortality and morbidity observed in peripartum hysterectomy in a tertiary care center.

MATERIAL AND METHODS

The present observational study was conducted in the Post Graduate Department of Obstetrics and Gynecology, S.M.G.S Hospital. Government Medical College, Jammu, from November 2012 to October 2013.

Following inclusion and exclusion criteria was used to select the study patients.

Inclusion Criteria

- Patients who underwent peripartum hysterectomy either immediately or within forty-two days of vaginal or cesarean delivery in SMGS Hospital over one year period
- Peripartum hysterectomy performed after 20 weeks of gestational age were taken.

Exclusion Criteria

- Cases of hysterectomy performed before 20 weeks of gestational age
- Hysterectomy performed electively for gynecological condition like large leiomyomas and carcinoma cervix were not taken in the study.

Thus total 40 cases of prepartum hysterectomy were enrolled in the study duration. A detailed history was taken of all cases. Maternal characteristics such as age, parity, gestational age, previous caesarean delivery, previous uterine curettage, history of ante partum bleeding, obstetric complication, mode of delivery and intrapartum complications were recorded on a prestructured proforma. Detailed clinical examination including general physical examination, systemic examination, pre abdomen and per vaginal examination done on admission for booked cases and prior to hysterectomy for both booked and referred cases was recorded on the proforma. Additional procedures performed prior to contemplating hysterectomy, need for blood and component transfusion, the indications for performing surgery, type, operating time, pre and post operative complications and number of hospitalization days were obtained. Post- operative examination of all cases was done. Monitoring chart in terms of vitals, input including crystalloids, colloids, blood and blood components and urine and drain site output were noted. All investigations done on admission for booked cases and before surgery for both booked and referred cases were also recorded on proforma. The collected data was displayed in percentages and represented with the help of appropriate tables and diagrams.

RESULTS

Table 1: Survival rate in patients undergone peripartum hysterectomy

	No. of patients	Percentage
Survived	36	90%
Died	04	10%
Total	**40**	**100%**

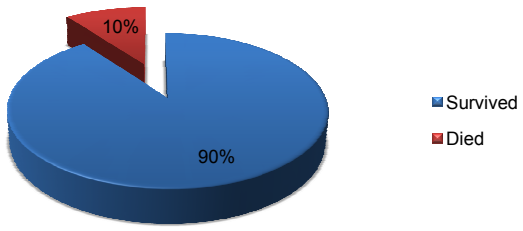

Figure 1: Survival rate in patients undergone peripartum hysterectomy

The survival rate observed after periparum hysterectomy was 90%. Four cases out of total 40 cases died in the due course of treatment.

Table 2: Distribution of patients according to present mode of delivery and indication for hysterectomy

Variable		No. of patients	Percentage
Mode of delivery	LSCS	18	45%
	Vaginal	11	27.5%
	Laprotomy	11	27.5%
Indication for hysterectomy	Rupture uterus	15	37.5%
	Placenta accreta	10	25%
	Placenta percreta	1	2.5%
	Atonic uterus	10	25%
	Uterine artery laceration	2	5%
	Uterine sepsis	1	2.5%
	Uterine inversion	1	2.5%

It was observed that 45% patients underwent LSCS prior to hysterectomy. Eleven patients had laparotomy fro rupture uterus followed by hysterectomy. Eleven patients were delivered vaginally. Most common indication for hysterectomy was ruptured uterus accounting for 37.5% of all hysterectomies performed. In 11 (27.5%) patients, hysterectomy was performed for abnormal palcentation. Out of this, 10 patients had placenta accrete and 1 had placenta percreta. 10 (25%) patients had atonic uterus. In 2 patients, hysterectomy was done for uterine artery lacerantion.

Table 3: Distribution of patients according to conservative procedures done prior to hysterectomy

Conservative procedures	No. of patients*	Percentage
Uterotonics	20	50%
Balloon tamponade	5	12.5%
Uterine packing	3	7.5%
Repair of uterine rupture	3	7.5%
Uterine a ligation	2	5%
Internal illiac a ligation	1	2.5%

*Multiple responses were observed

Conservative procedures were tried in 27 (67.5%) patients with the aim of preserving uterus. Uterotonic drugs (oxytocin, misoprostol, carboprost) were given in 50% patients. In 5 patient's balloon tamponade and in 3 patients uterine packing was done prior to contemplation hysterectomy. Repair of uterine rupture was tried in 3 patients. Uterine artery was ligated in 2 patients and internal iliac artery was ligated in 1 patient to control hemorrhage prior to attempting hysterectomy.

Table 4: Distribution of patients according to blood and component transfused

Transfusion		No. of patients	Percentage
Units of blood transfused	≤ 3	6	15
	4-5	24	60
	6-9	8	20
	≥ 10	2	5
Component transfusion	FFP	26	65
	FFP+Platelets	4	10
	No components received	10	25

All patients received intraoperative and postoperative blood transfusion. Most of the patients received 4-5 units of blood transfusion. Minimum units of blood transfused were two. Maximum units of blood transfused were eleven. It was seen that 30 patients received blood component (FFP, Platelet) transfusion. FFP transfusion alone was given in 26 (65%) patients. 4 (10%) patients received both FFPs and Platelet transfusion. Maximum units of FFPs transfused were sixteen.

Table 5: Distribution of patients according to intraoperative /507ostoperative complications

Complications	No. of patients*	Percentage
Bladder injury	10	25%
Anaesthesia complication	5	12.5%
Re-laparotomy	3	7.5%
DIC	2	5%
ICU admission	2	5%
Febrile morbidity	12	30%
Wound infection	19	47.5%
Wound dehscence	3	7.5%
Paralytic ileus	4	10%
DVT	1	2.5%
VF	1	2.5%
PRES	1	2.5%
Maternal mortality	4	10%

* Multiple responses were observed

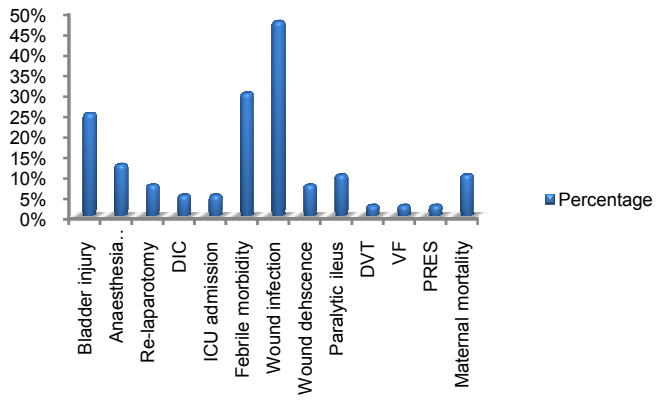

Figure 2: Distribution of patients according to intraoperative/postopertaive complications

Intraoperative and postoperative complication was observed in 36 (90%) patients. Wound infection was the most common complication, seen in 19 (47.5%) patients. Wound dehiscence occurred in 3 patients for which re-suturing were required. Three patients required re-laparotomy for post – hysterectomy hemoperitoneum. Maternal mortality occurred in 4 (10%) patients.

Table 6: Distribution of patients according to duration of hospital stay

Duration	No. of patients*	Percentage
≤ 10 days	7	17.5%
11-15 days	24	60%
16-20 days	6	15%
≥ 20 days	3	7.5%

Most of the patients (60%) stayed in hospital for 11-15 days. Minimum duration of hospital stay (apart from patients who expired) was eight days. Maximum duration of hospital stay was sixty days.

DISCUSSION

The present study was conducted to study the maternal mortality and morbidity observed in peripartum hysterectomy. The survival rate observed after periparum hysterectomy was 90%. Four cases out of total 40 cases died in the due course of treatment. Thus the maternal mortality rate in the present study was 10%. Where severe, irreversible hemorrhagic shock was attributing to 2 case and DIC was attributing to 2 cases. In Indian literature, Najam R *et al*[17] reported a mortality rate of 12.5% while Kwee A *et al*[18] found a case fatality rate of 4%. Knight M *et al*[19] in their UK based study reported a maternal mortality rate of 0.6% which is much lower compared to Indian population. Lack of antenatal care coupled with delayed referral of these high risk obstetric cases probably leads to high maternal mortality rates in our country. It was observed that out of total 40 cases of peripartum hysterectomy, 18 (45%) were delivered by LSCS; 11 (27.5%) vaginally and 11 (27.5%) underwent laparotomy for rupture uterus. The most common indication of peripartum hysterectomy in the present study was rupture uterus accounting for 37.5% of the total hysterectomies. Out of these, 27.5% were referred from peripheral rural areas. 15% had scar rupture, 35% were multiparous with 22.5% being mulipara with non-scar rupture. 5% cases of uterine rupture were associated with hydrocephalus. One patient had a traumatic rupture were following road traffic accident. 2 cases of uterine rupture were associated with broad ligament hematomas. Occurrence of uterine rupture is significantly associated with grand multiparity, scarred uterus, lack of antenatal care, unsupervised labor at home, injudicious use of oxytocin, and low socioeconomic status of the women. All these factors are largely preventable. Morbidly adherent placenta was the second most common cause. Third most common indication was uterine atony which accounted for 25% of all hysterectomies. Our finding were consistent with Marwaha P *et al*[20] who observed rupture uterus as being the most common indication for hysterectomy in their study. Najam R *et al*[17] also found rupture uterus as the most common cause in their study. However Knight M *et al*[19] reported hemorrhage due to uterine atony and morbidly adherent placenta as the major causes requiring peripartum hysterectomy in their study. Agarwal S *et al*[21] found placenta accrete as the major cause the hysterectomy followed by uterine atony and rupture uterus. It was seen that in 67.5% patients one or more fertility preserving, conservative procedures were tried before hysterectomy. Out of these most common was administration of uterotonic drugs which were given in50% patients. Oxytocin (20 units in 500 ml NS), ergometerine injection, misoprostal table (600µg P/R) and carboprost injection were used. Balloon tamponade was done in 12.5% cases of atonic uterus while uterine packing was tried in 7.5% cases. Repair of uterine rupture was tried in 7.5% patients before attempting hysterectomy. Uterine artery was ligated in 5% patients and internal iliac artery ligation was done in 2.5% patient. Marwaha P *et al*[20] also found 2 cases in their study where uterine artery ligation followed by internal iliac ligation was performed to control hemorrhage but ultimately hysterectomy had to be done. Similarly, Knight M *et al*[19] also documented high percentage of conservative treatment being tried in their study before attempting hysterectomy. It was observed that all the patents were noted to have received blood transfusion during or in the immediate postoperative period where indicated. Similar findings were also reported by Awan *et al*[22] in Australia where all patients required blood transfusion. It was seen that in the present study 75% patients received component transfusion; of which 65% received only FFPs and 10% received both FFPs and platelet transfusion. The morbidity of peripartum hysterectomy (blood loss, blood transfusion requirement, surgical complications, length of hospital stay and intensive care unit admissions) was very high compared to other common obstetric surgeries. Almost all our patients (90%) experienced some form of complication that included four maternal deaths, bladder injury, re-laparotomy for hemoperitoneum, sepsis and requirement for intensive care admission. Post-operative wound infection was the commonest complication encountered in 47.5% patients in our study. Out of these, 7.5% patients developed wound dehiscence and required re-suturing. Febrile morbidity was encountered by 30% patients. This is again not unexpected considering that the underlying etiologies themselves were life threatening and emergency surgeries are always associated with

higher morbidity and mortality. Bladder injury occurred in 25% patients and all were associated with a previous cesarean section. 7.5% patients underwent re-laparotomy for hemoperitoneum and 5% patients were shifted to intensive care Unit. Other reported complications included anesthesia related complications in 12.5% patients, disseminated intravascular coagulopathy in 5%, paralytic illus in 10% and VVF, PRES and DVT in 2.5% patients each. The findings were comparable to the results reported by Castaneda S *et al*,[12] Kwee A *et al*[18] and Indulekha *et al*[23] who also observed high maternal morbidity in their studies. Knight M *et al*[19] through their UK based study also demonstrated that the morbidity associated with hemorrhage requiring peripartum hysterectomy extends far beyond the hysterectomy itself. One-fifth of all women suffered damage to other structures, on-fifth required a further operation to control hemorrhage or to repair the organ damage and nearly one-fifth were reported to have additional severe morbidity. It thus clearly indicates that the impact of this condition and its associated morbidity to the woman themselves and to the health economy in significant. Peripartum hysterectomy being a radical surgery is associated with longer duration of hospital stay for most of the patients. It was seen that 60% patients stayed in hospital for 11-15 days, 15% for 16-20 days and 7.5% patients stayed in hospital for more than 20 days. Wills R *et al*[24] also reported high median length of hospital stay. Peripartum hysterectomy is a major operation, and in current times almost always an emergency with high risk for significant blood loss. Obstetricians should identify patients at risk and anticipate the procedure and complications.

CONCLUSION

Thus we conclude that although peripartum hysterectomy is a rare condition, it represents a catastrophic and sometimes fatal to a pregnancy for any woman. Wound infection, bladder injury, anesthesia complication and re-laparotomy were the common complication observed leading to high morbidity rate.

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