ORIGINAL ARTICLE

Peripartum Hysterectomy: A six year experience at a tertiary care centre

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Abstract:

Objective: To assess the frequency, indications and peri-operative complications of peri partum hysterectomy in a tertiary care teaching hospital.

Setting: Obstetric department of Ziauddin Hospital which is affiliated with Ziauddin University.

Period of study: from January 2014 to September 2019

Study design: Retrospective cross sectional study.

Material and Methods: All patients during the study period who underwent obstetric hysterectomy at Ziauddin Hospital were included in the study. 45 peri partum hysterectomies were performed. Case records were reviewed for socio-demographic characteristics of the patients, indications for the hysterectomy, previous mode of delivery and maternal outcome, in terms of mortality and peri operative morbidity.

Results: The frequency of peri-partum hysterectomy was 0.157% during the study period. The mean age of patients was 31.88 ±2.55years. 93.3% were multigravidas. Commonest indication was placenta accreta (62.2%) followed by uterine rupture (15.5%) and placenta previa (11.1%). Uterine atony and multiple fibroids were the cause in 4.4% each and endometritis in 2.2%. The commonest peri operative complication was hemorrhage which was encountered in 100% of cases and was >3000ml in 35.5% cases followed by injury to the urinary bladder in 36.6% and DIC in 26.6%. Other complications included broad ligament hematoma, unilateral salpingo oophorectomy, wound infection, sepsis, renal failure and ureteric ligation. Maternal mortality was 2.2%.

Conclusion: Peripartum hysterectomy is a challenging surgery performed to save the life of the mother in life threatening hemorrhage. The most frequent indication was placenta accreta and the most commonly associated risk factor was previous cesarean section. The most common complication was hemorrhage followed by urinary tract injury. Maternal mortality was 2.2%

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Introduction:

Peripartum hysterectomy is a life-saving procedure, which isperformed in desperate situations where the life of mother is endangered due to complications in pregnancy or childbirth, most commonly due to life threatening hemorrhage. The overall incidence of the disease is 0.05%1but the incidence varies widely in different countries depending on the quality of health facilities available from 0.035%-2.3%.[2-11] The incidence is reported to be 0.1% in U.S.A.[12] In Pakistan the incidence is reported as 0.15 to0.4% in various studies.[13-15] Traditionally uterine atony and uterine rupture were the most common indication for peri partum hysterectomy. However, in the recent years with increasing cesarean section rates and advancement in the treatment of uterine atony, changing trends have been reported

Table 1: Indications for peri partum hysterectomy

Indications	No of patients (n)=45	Percent %
Placenta accrete	28	62.22
Rupture uterus	7	15.55
Placenta previa	5	11.11
Uterine atony	2	4.44
Lower segment fibroid	2	4.44
Endometritis	1	2.22
TOTAL	45	100

Table 2: Peri operative complications (n=45)

Peri operative complication	No of cases(n)	Percentage %
Haemmorhage	45	100
Bladder injury	17	37.77
DIC	12	26.66
Broad ligament hematoma	4	8.88
Salpingo oophorectomy	3	6.66
wound infection	2	4.44
Sepsis	1	2.22
Renal failure	1	2.22
Ureteric ligationBroad ligament hematoma	1	2.22

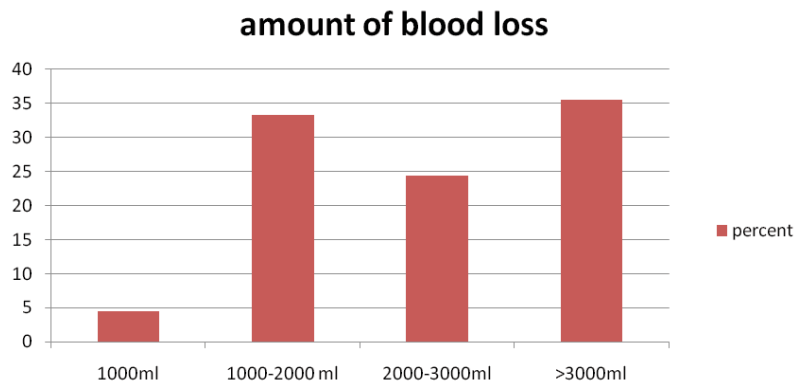

Figure 1: Amount of blood loss

with morbid adherence of placenta taking lead over the traditional indications. We therefore performed this study with the aim of assessing the indications, risk factors and complications in cases of peripartum hysterectomies in our tertiary care hospital in Pakistan.

Material and Methods:

We conducted a retrospective cross sectional study of all women who underwent hysterectomy, during pregnancy and within 6-weeks of delivery at Ziauddin Hospital Pakistan between 1st January 2014 to 30th September 2019. Ziauddin Hospital is a tertiary care teaching hospital, affiliated with Ziauddin University. Patients were enrolled in the study by non-probability consecutive sampling. We included both booked as well as unbooked and referred patients, who had emergency hysterectomy and those in whom we had planned obstetric hysterectomy due to antenatally diagnosed morbidly adherent placenta on ultrasound.

After collecting relevant data, from medical files, labor room register and operation theatre records, cases of peri-partum hysterectomies were analyzed for information regarding demographic data including maternal age, parity, gestational age, previous mode of delivery, indication and procedure related mortality and morbidity including peri-operative complications like organ damage, sepsis, wound infection, amount of blood loss and blood transfusion required; admission to ICU and maternal mortality. Data was entered on a predefined proforma.

All statistical analysis were done using the SPSS. Mean with standard deviation was calculated for quantitative variables. Frequency and percentages were stated for categorical variables.

Results:

During 1st January 2014-30th September 2019, there were 28,557 deliveries. Peripartum hysterectomies were performed on 45 patients, yielding an incidence of 0.15%. 21 (46.7%) patients were booked, 24 patients (53.3%) were unbooked, of which 5 (11.1%) were referred from other hospitals. The mean age in years was 31.88±2.55 years and the mean gestational age in weeks was 33.6 weeks. Mean parity was 3.8, among them 3 patients were Primigravida. 75.5% patient (n=34) had a history of prior cesarean section. Out of these 34 patients 8.8% had previous 1 cesarean, 32.4% had previous 2 cesareans, 41.2% had previous 3 cesareans and 17.6% had history of previous 4 cesarean sections . The indications for peri partum hysterectomy in our study are summarized in table 1.

The most common indication was placenta accreta which was present in 62.22% followed by uterine rupture in 15.55%. In 11.1%, excessive bleeding from placenta previa bed was responsible for the decision to undertake hysterectomy. 4.44% had hysterectomy due to uterine atony. 4.44% (n=2) had uncontrolled bleeding associated with multiple fibroids. 2.2% had endometritis.

Hemorrhage was encountered in 100% cases and in 35.5% it was >3000 ml. Fig 1 summarizes the range of blood loss.

Transfusion was 2 to 3 liters of blood in 24.4% and up to 6 liters in 4.4%. Among organ injuries, bladder injury was reported in 17 (37.8%) patients ,ureter was ligated in 1 patient(2.2%), unilateral salpingo oophorectomy in 3 patients (6.6.%). Renal failure occurred in 1 (2.2%) patient. 4 patients (8.8%) had broad ligament hematoma. 62% (n=28) of patients stayed in the ICU. Stay for most of the patients was for 2-3 days. Only 2 patients stayed in the ICU for 5days. Maternal mortality occurred in 1 patient (2.2%). The summary of perioperative complications is presented in table 2.

Discussion:

Peripartum hysterectomy is usually an emergency live saving procedure. Globally the incidence of peri partum hysterectomy has been reported as 0.035% to 2.3%.[2-11] In our study the frequency was 0.157%. All females who undergo peri partum hysterectomies are considered maternal near miss. Previously the commonest indication for this procedure was uterine atony but with increasing cesarean section rate there is a significant shift towards morbidly adherent placenta as the leading cause of peri partum hysterectomy. If a morbidly adherent placenta is identified antenatally on ultrasound then a planned obstetric hysterectomy is indicated, and no attempt is made to deliver the placenta to reduce the risk of hemorrhage. However, the placental bed may bleed profusely from spontaneous partial separation of placenta.

The increase in the morbid adherence of placenta is most commonly associated with increasing cesarean section rate. Specially, if placenta implants in the lower segment of uterus, it invades the deficient myometrium of scarred uterus deep into the decidua and even invades the myometrium or reaches the surface of the uterus. The placental sinuses are opened up at the time of cesarean section and there is torrential hemorrhage, which can lead to maternal death, if timely hysterectomy is not performed. In our study, the commonest indication for peri-partum hysterectomy was placenta accreta which was seen in 62.2% of cases, followed by uterine rupture in 15.55% of cases. Uterine rupture is associated with previous cesarean sections and injudicious use of oxytocin. This is in accordance with the study conducted by Bharti Sharma who reports placenta accreeta in 60% of her cases.[16]

Haque after analyzing data from the large multicenter based woman trial conducted in 21 countries also concluded that hemorrhage from placenta previa and accreta are associated with a higher risk of hysterectomy.[17]

However studies from third world countries still report uterine atony and rupture of uterus as leading indications for peri partum hysterectomy.[18,19]

Almost all local studies from Pakistan also reported uterine atony or uterine rupture as the top most indication of peri partum hysterectomy.[14,20] However a 10 year study conducted at Agha Khan Hospital found morbid adherence of placenta as the most frequent indication for peri partum hysterectomy.

As far as our knowledge our study is the one of the very few local studies that found morbid adherence of placenta as the most common cause. This may be an indicator of rising cesarean section rate. Uterine atony was the cause in only 4.4% of our cases. This may be because of more efficient management of uterine atony by advanced procedures like ß-lynch and compression cho sutures.

The mean maternal age in our study subjects was

31.88±2. 55 years. 93.4% of our patients were multi para and 6.6% were primipara. This is in accordance with other studies where multi parity is regarded as increased risk. The commonest association was found with previous cesarean sections. In fact, we had a history of cesarean section in 75.5% of our cases. This association is also supported by other studies.[14,21,22] All cases of peri partum hysterectomy are associated with a potential threat to the life and health of the mother. In our study we had 1-maternal mortality out of our 45 cases (2.2%). She was referred from another hospital in a state of shock and DIC associated with primary postpartum hemorrhage after cesarean section. Post-operatively she went in sepsis and renal failure. Another of our patients who was referred from another health care facility was opened for cesarean section but on encountering placenta percreta, the primary surgeon closed the abdomen and referred the patient to our hospital where peri partum hysterectomy was performed and the patient survived. This appears to be a sensible approach if placenta accreta is encountered as an incidental finding per operatively, by inexperienced surgeon. However the best approach is to perform Doppler ultrasound in all cases with placenta previa and previous cesarean section, and if positive for placenta accreta, MRI can be performed to confirm the diagnosis. Our maternal mortality associated with peri partum hysterectomy is less as compared to that reported by other studies from Pakistan and other third world countries.[23-25,28] However it is still high when compared to international studies.[4]

The commonest morbidity that we encountered was hemorrhage which was present in all our cases. In 35.5% it was more than 3000 ml. This signifies the gravity of the condition. In all but one blood transfusion was required. 17(37.7%) of our patients suffered bladder injury. In all the cases bladder was densely adherent to the uterus due to multiple previous cesareans and in 3 of them placenta was invading inside the bladder. Ureter was accidentally ligated in 1 patient (2.2%). Broad ligament hematoma in 4 patients was associated with uterine rupture in 2 patients and placenta accreta in 2. In one of these patients placenta was invading the lateral pedicles of uterus. All 3 of our patients in whom emergency unilateral salpingo oophorectomy was performed were in DIC and salpingo oophorectomy was performed as a desperate measure to secure hemostasis. DIC was found in 26.6% of our cases. This is comparable with other studies.[25,26]

62% of our patients stayed in the ICU. Intensive care monitoring is required for vigilant assessment of the patient's general condition, vital signs, record of input and output, drain output and blood and blood product transfusion.

Our case mortality rate was 2.2%. This is less than the rate reported by most local studies [23,29,30] However it is higher than maternal mortality reported by European studies[31]

Conclusion:
Peripartum hysterectomy is the most challenging obstetric surgery performed in the most exhausting situation of potentially life threatening hemorrhage. The most frequent indication for peri-partum hysterectomy was placenta accreta and the most commonly associated risk factor was previous cesarean section. The most common complication was hemorrhage followed by urinary tract injury . Maternal mortality was 2.2%

Recommendation: Antenatal risk factors evaluation, performing Doppler ultrasound and MRI in patients with placenta previa and history of previous cesarean section, involvement of an experienced obstetrician and anesthetist and timely decision to proceed to hysterectomy with simultaneous resuscitation can be expected to reduce the morbidity and mortality associated with peri partum hysterectomy. Moreover, every effort should be done to reduce the primary cesarean section by critical audit of all cesarean sections.

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Role and contribution of authors:

Dr Urooj Malik, Concept & Design of Study, data collection and Analysis, Revisiting Critically, Final Approval of version

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Dr Sheeba Hussain, data collection and Analysis

Dr Nigar Sadaf, drafting

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