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Original Research Article

Study of fetomaternal outcome in emergency peripartum hysterectomy at pannadhay zanana hospital, Udaipur, India

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ABSTRACT

Background: Peripartum or obstetric hysterectomy is the removal of the corpus uteri alone or with the cervix at the time of a caesarean section or shortly after a vaginal delivery. On one hand, it is the last resort to save a woman's life and on the other hand, her reproductive capability is sacrificed. Many times it is a very difficult decision and requires good clinical judgment. Most of the time the operation is carried out when the condition of patient is too critical to withstand the risks of anesthesia or surgery, but proper timing and meticulous care may reduce or prevent maternal complications.
Methods: The study is prospective study and was conducted on cases of peripartum emergency hysterectomy performed at PDZH, Udaipur, during the period from April 2021 to October 2022.
Results: Our study depicts following results on the basis of 31498 deliveries during the study period (April 2021 to October 2022), so the overall incidence of peripartum hysterectomy is 1 in 1049 (0.095%). Incidence of hysterectomy following vaginal delivery found to be 0.15%, whereas following caesarean incidence found to be 0.24%.
Conclusions: Increase in caesarean section rates may lead to a rise in the number of peripartum hysterectomies required in the future because of increased chances of scar dehiscence and morbidly adherent placenta and Thus, there is a need for institutions to reassess their indication for first caesarean section to decrease the incidence of caesarean sections.

Keywords: Peripartum hysterectomy, PPH, Rupture uterus

INTRODUCTION

Peripartum or obstetric hysterectomy is the removal of the corpus uteri alone or with the cervix at the time of a caesarean section or shortly after a vaginal delivery.[1] On one hand, it is the last resort to save a woman's life and on the other hand, her reproductive capability is sacrificed. Many times it is a very difficult decision and requires good clinical judgment. Most of the time the operation is carried out when the condition of patient is too critical to withstand the risks of anesthesia or surgery, but proper timing and meticulous care may reduce or prevent maternal complications.[2] A Peripartum hysterectomy is a procedure performed at the time of delivery or in the immediate postpartum period as a life-saving measure in response to severe postpartum hemorrhage that does not respond to any other interventions. Moreover, peripartum hysterectomy results in a permanent loss of future childbearing opportunities.[3]

The first caesarean hysterectomy performed in the United States was by H.R. Storer in Boston; unfortunately, it was unsuccessful, and the patient expired on postpartum day 3. Edward Porro is credited with the first successful caesarean hysterectomy in this country in 1876. For years the procedure had Dr. Porro's name attached to it, being referred to the Porro Hysterectomy.[4] "Caesarean hysterectomy is by definition a life-saving procedure performed to control hemorrhage," according to Nichols. During the training of one of the authors in the late 1970s and early 1980s, caesarean hysterectomy was performed for Sterilization. Over time, more techniques to control

bleeding and conserve the uterus have been developed. Considerably fewer caesarean hysterectomies are performed today.[5]

Although the incidence of peripartum hysterectomy is low, it represents a major operation in modern obstetrics being associated with a high rate of morbidity and mortality.[7] By the 1970s elective caesarean hysterectomy for such complications like PPH, rupture uterus, placenta accrete fell into disrepute due to the association of the procedure with excessive blood loss and urological injury. Since 1980, indications for peripartum hysterectomy have been restricted to emergent situation.[9]

Originally the indications included uterine sepsis (amnionitis) after prolonged labor, atonic uterus or uncontrollable hemorrhage from placental site, cancer of the cervix, extensive atresia of the vagina preventing discharge of lochia, cases of ruptured uterus where suturing would be unsafe, uterine fibroids and tuberculosis.[10]

The main causes of uncontrollable hemorrhage necessitating peripartum hysterectomy have changed since 1980s.[11] Uterine atony and rupture have been overtaken by abnormal placentation in many studies. this is not only because of improved conservative management of uterine atony and a reduced incidence of uterine rupture due to the extensive use of the lower uterine segment incision in preference to the upper uterine segment incision for caesarean section, but also because of an actual increase in the incidence of morbidly adherent placenta.[13] The risk factors for abnormal placentation include advanced maternal age, multiparity, multiple gestation and gestational diabetes scarred uterus owing to previous caesarean section, myomectomy, dilatation and curettage, multiparty and older age group.[14]

In our country rupture uterus is still a frequently encountered obstetric emergency in contrast to a developed county, due to poor socio-economic status.[18] This unfortunate complication of childbirth is responsible for good number of cases of maternal and fetal mortality and morbidity. Apart from immediate death and disability, various complications, both psychological and organic, especially those of female genital tract follow as an aftermath of rupture uterus.[22]

The purpose of our study is to know the incidence, indications and the maternal profile of the patients undergoing emergency hysterectomies at our tertiary level hospital which mainly caters to the rural population. Secondarily, we aimed to identify the complications which are associated with this emergency surgery and the perinatal outcome in these patients were also studied.

Indications of emergency hysterectomy are uterine rupture, atonic PPH, placental abnormalities, broad ligament haematoma and others like sepsis, retained placenta.

METHODS

The was prospective study conducted on cases of peripartum emergency hysterectomy performed at Pannadhaya Zanana Hospital RNT Medical College, Udaipur, during the period from April 2021 to October 2022.

Inclusion criteria

Patients who underwent peripartum hysterectomy either immediately or within forty-two days of vaginal or caesarean delivery, peripartum hysterectomy performed after 28 weeks of gestational age were included.

Exclusion criteria

Exclusion criteria were cases of hysterectomy performed before 28 weeks of gestational age, hysterectomy performed for any gynecological condition like leiomyomas and carcinoma cervix were not included in the study.

Cases were analysed in terms of age, place (urban /rural). detailed obstetrical history of present and previous pregnancy with respect to parity and any high-risk factors associated like anemia, heart diseases, diabetes mellitus, pregnancy induced hypertension and history of previous caesarean sections and number of caesarean section. Antenatal care in terms of number of visits, any complication in ANC period. Indication of obstetric hysterectomy. Complications during the intrapartum and post operative period.

Methodology

A total of 30 peripartum hysterectomy cases were analyzed in this study conducted at Zanana Hospital, RNT Medical College, Udaipur, Rajasthan during the period from April 2021 to October 2022.

RESULTS

The following observation are based on a study of 30 cases of peripartum hysterectomy treated in Zanana Hospital, RNT Medical College, Udaipur, Rajasthan during the period from April 2021 to October 2022.

Incidence

The total number of deliveries were 31498 during the study period (April 2021 to October 2022), so the overall incidence of peripartum hysterectomy is 1 in 1049 (0.095%). Incidence of hysterectomy following vaginal delivery found to be 0.15%, whereas following caesarean incidence found to be 0.24%. Incidence of emergency hysterectomy depends on number of factors like education status, availability of antenatal and medical care, socio economic status and nutritional status, working pattern of traditional birth attendants, fertility pattern and means of

communication hence incidence is likely to be different at different places, because of variability of condition (Table 1).

Table 1: Incidence of obstetric hysterectomy.

Statistical data	Number
Total Number of deliveries	31498
Number of caesareans	12, 299 (39.04%)
Number of vaginal deliveries	19, 199 (60.95%)
Number of peripartum hysterectomy	30
Ratio of peripartum hysterectomy: deliveries	1:1049
Incidence of peripartum hysterectomy	0.095%
Incidence of peripartum hysterectomy following caesarean	0.24%
Incidence of peripatum hysterectomy following vaginal deliveries	0.15%

According to Table number 2 most of peripartum hysterectomy 43.3% belongs to age group 26-30 years.

Table 2: Distribution of peripartum hysterectomy cases according to age group.

Age group	No of patients	Percentage (%)
20-25 years	10	33.3
26-30 years	13	43.3
31-35 years	6	20
Above 35	1	3.4
Total	30	100

According to Table 3 maximum (76.7%) peripartum hysterectomy belongs to multiple parity.

Table 3: Relation of the emergency hysterectomy with parity.

Parity	No of patient	Patient (%)
Primi para	7	23.3
Parity 2 to 3	20	66.7
Para 4 and above	3	10
Total	30	100

Table 4: Hemoglobin level at the time of admission.

Level of haemoglobin	No. of patients	Percentage of patients (%)
<6 gm%	7	23.3
6 to 8 %	11	36.7
8 to 11 gm%	12	40

In our study, 23.3% cases were admitted in severely anemic state i.e. Hb less than 6gm % while 36.7% cases had Hb above 6-8 gm% and 40% Hb between 8-11gm% (Table 4).

Mode of delivery in cases of emergency hysterectomy

Accord to our study group 63.3% (17) cases having peripartum hysterectomy after caesarean section, whereas 36.7% (11) cases ended in peripartum hysterectomy following vaginal delivery.

Table 5: Time duration between hysterectomy and delivery.

Duration	No. of patients	Percentage of patients (%)
<6 hours	16	53.3
6 to 12 hours	11	36.7
>12 hours	3	10
Total	30	100

Table 5 shows time interval between time of delivery and time of hysterectomy performed, in 50% of the cases hysterectomy was performed within 6 hours of delivery as the diagnosis of rupture, placenta accrete, broad ligament hematoma, PPH were made immediately and decision of hysterectomy was taken. In nearly all cases of PPH, initial conservative management were performed and last resort was hysterectomy. While in one case of retained placenta, and 2 cases of atonic PPH where patient was referred from periphery duration was more than 12 hours probably as the time consumed was more because of lack of transportation and time needed to reach tertiary hospital was more and late referrals (Table 6).

Table 6: Indication of emergency peripartum hysterectomy.

Indication		No. of patients	Percentage of patients (%)
Rupture uterus		13	43.4
Atonic PPH		9	30
Morbidly adherent placenta	I. Placenta accrete	2	6.7
	II. Placenta percreta	1	3.3
Placental abruption		1	3.3
Uterine myomas		1	3.3
Broad ligament heamatoma		2	6.7
Retained placenta		1	3.3

The most common indication for peripartum hysterectomy was rupture uterus (43.4%) followed by postpartum hemorrhage (30%). In 3 cases hysterectomy was done due to morbidly adherent placenta. In 2 cases (6.7%) formation of broad ligament hematoma was the indication for periprtum hysterectomy. Multiple fibroid leading to uncontrollable bleeding was treated by hysterectomy in one case. Retained placenta necessitate the emergency hysterectomy in one patient i.e. (3.3%).

Table 07 shows postoperative complication in patients who undergone emergency peripartum hysterectomy. In present study most common complication was septicemia that occurred in 14 cases (50%) followed by urinary tract infection in 10 cases. wound sepsis occurred in 6 patients (21%) blood transfusion reaction occurred in 3 cases. One patient had bladder injury and same was repaired during surgery. 4 patients went into DIC, two developed pulmonary edema and 2 patients had multiorgan dysfunction due to irreversible hemorrhagic shock. All patients were admitted in ICU for proper postoperative care.

Table 7: Post operative complication.

Post operative complication	No. of patients	Percentage of patients (%)
Septicemia	14	46.7
Paralytic ileus	9	30
Urinary tract infection	10	33.3
Blood transfusion reaction	3	10
Wound sepsis	6	20
Bladder injury	1	3.3
DIC	4	13.3
Pulmonary edema	2	6.66
MODS	2	6.66

Placenta accreta was an independent risk factor for bladder damage and also a risk factor for further surgery. This emphasizes that consideration of the cause of the associated haemorrhage is important when these women are managed.

DISCUSSION

The following observation are based on a study of 30 cases of peripartum hysterectomy treated in Zanana Hospital, RNT Medical College, Udaipur, Rajasthan during the period from April 2021 to October 2022.

Table 8: Comparison of other series with ours: incidence.

Authors	Year's	Incidence (%)
Wani et al[25]	2016	0.14
Dobroslawa et al[26]	2016	0.12
Amudha et al[26]	2016	0.01
Rekha et al[29]	2015	0.18
Vijayani et al[31]	2015	0.07
Nohira et al[32]	2014	0.03
Nooren et al[33]	2014	0.17
Swati et al[34]	2013	0.047
Carvalho et al[35]	2012	0.041
Lovina et al[36]	2011	0.024 to 0.87
Rajyshree et al[37]	2009	0.54
Ahmed S et al[23]	2006	0.26
Present series	2021 to 2022	0.095

In the present study incidence was 0.095%. Incidence of peripartum hysterectomy. Various authors like Wani et al (2016) 0.14%, Dobroslawa et al (2016) 0.12%, Nooren et al (2014) 0.17%.[25,26,33] Higher incidence was reported by other authors like Amudha et al (2016) 1.01%, Lovina et al (2011) 0.87%, Rajyshree et al (2009) 0.54%, Ahmed et al (2006) 0.26%.[36,23]

Nohira et al (2016) 0.03% (75), Vijayani et al (2015) 0.07% (73), Swati et al (2013) 0.047%, Carvalho et al (2012) 0.04% (79) reported less incidence of peripartum hysterectomy (Table 8).[32,35]

Higher incidence in our study was due to poor antenatal care poor transportation, lack of education, anemia, multiparity, obstructed labour, previous caesarean section. The association between the incidences of peripartum hysterectomy with a history of previous CS is mainly because of the occurrence of morbidly adherent placenta.

Maximum no of patients were included in age group of 26 to 30 years that is 13 (43.3%), and in age group of 20 to 25 years that is 10 (33.3%) of total patients are included and in the age group of 31-35 that is 6 (20%) and only one patient was aged above 35 years. youngest patient was 20 year old and oldest patient was 37 year old with mean age group of 27.1 years.

In present series rupture uterus was the principle indication. All 30 cases were multiparous out of which one patient was grand multiparous. All the patient belong to age group of 20 to 35 years. Except for 4 cases with pervious caesarean all other patient had previous normal vaginal delivery. 69% patients were from rural area who were brought in prolonged obstructed labour. History of intervention in the form of pressure on abdomen, manipulation by para medical staffs was present in majority of cases. Out of 13 cases 8 had no antenatal care and admitted as an emergency cases.

Rupture uterus was also the most important indication for emergency hysterectomy in other series like Nohira et al (2014) i.e. 38.5%, Nooren et al (2014) rupture uterus accounted for 50% cases, Wakhloo et al (2016) 37.5% and Agarwala et al (2013) found 22.22% of uterine rupture as indication of emergency hysterectomy.[32,33,28,34]

In Wani et al, series the main indication of peripartum hysterectomy was life threatening hemorrhage due to uterine rupture.[25] In Rekha et al, rupture uterus accounted for 14.16% cases.[29] In Rajyashree et al series (2009) 19 cases of peripartum hysterectomy (26.7%) out of 70 cases was done for rupture uterus.[37] Ahmad et al (2006) also observed most common indication for emergency hysterectomy has uterine rupture (30%).[23]

Mirza nooren et al (2015) and Allahbadia et al. (2009), Carvalho et al (2012) also found the common indication for peripartum hysterectomy as atonic postpartum hemorrhage.[31,21,35] In Wakhloo et al, ten (25%) patients

underwent hysterectomy for atonic uterus.[28] In Swati et al series, uterine atony was the second most frequent indication for peripartum hysterectomy accounting for 36.11% of all cases (Table 9).[34]

Table 9: Indication of obstetric hysterectomy in other studies from India

Indication	Wakhloo et al[28] (%)	Nooren[33] (%)	Agarwal et al[34](%)	Ahmad et al[23](%)	Allahabadia et al[21](%)	Anitha et al (%)
Post partum hemorrhage		35			16	41.6
Atonic mixed	25		36.1	21		
Rupture uterus	37.5	50	24.9	30	20	36.58
Placental causes		18		25		12.19
Previa accrete	25			4	4	
Percreta	2.5		38.8	4		
Abruption				12	2	
Fibroid uterus				1		

Maternal outcome

In present series 3 maternal death out of 30 cases occurred, giving an incidence of 10%.

Table 10: Incidence of maternal mortality in cases of emergency peripartum hysterectomies.

Authors	Year	Incidence of maternal mortality (%)
Wani et al[25]	2016	11.7
Amudha et al[27]	2016	10.3
Dobroslawa et al[26]	2016	1.9
Rekha et al[29]	2015	12.5
Noreen et al[33]	2014	15
Swati et al[34]	2013	19.44
Carvalho et al[35]	2012	7.69
Rajyashree et al[37]	2009	5.7
Ahmad[23]	2006	3
Present study	2021 to 2022	14.28

In our study there were 3 cases of maternal mortality i.e. with incidence 10%. In Swati et al, rate was in higher side i.e. 19.4%, four deaths were due to consumptive coagulopathy and the other three due to irreversible hemorrhagic shock and renal failure."[34]

Lower rates were seen Dobroslawa et al i.e. 1.9%, Rajyashree et al, 5.7%, Ahmad S et al following emergency hysterectomy i.e. 3%, and the cause of death was related to complications like shock, septicemia and disseminated intravascular coagulation (DIC).[26,37,23]

In the present study there were two still birth, one early neonatal death occurred and rest 24 were discharged healthy, accounting for 10% of perinatal mortality.

Similar observations with high perinatal mortality rate were observed in other study groups i.e. Nooren et al found around 55% of neonatal mortality, in Wani et al the stillbirth rate was 303/1000 (Table 10).[33,25]

This study has some limitations. Although there is enough number of patients in our study but time duration if taken more than data may be more précised. Secondly as it's our study done at tertiary care centre which got many high risk referrals from periphery (mostly hilly area), so result may vary at tertiary center with plain periphery surroundings

CONCLUSION

Antenatal identification of high risk patients, proper management of second and third stage of labor and emergency preparedness are important in decreasing the rate of peripartum hysterectomy and improving the fetomaternal outcome. Risk of rupture of uterus or placental abnormalities and PPH should be kept in mind in previously sectioned patients. Timely reference with documentation from periphery of these high risk patients will certainly improve the outcome. There is a need for more effective implementation of family welfare and reproductive health measures in the developing nations to reduce the incidence of life threatening obstetric complications.

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