

INDICATIONS AND OUTCOME OF PERIPARTUM HYSTERECTOMY IN TERTIARY CARE AT DR VITTHALRAO VIKHE PATIL'S PRAVARA RURAL HOSPITAL, LONI

Obstetrics & Gynaecology

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ABSTRACT

Background- Emergency peripartum hysterectomy is a critical obstetric procedure performed to manage life-threatening obstetric hemorrhage when other measures fail. Recent trends show it is increasingly performed due to placental abnormalities like placenta previa and morbidly adherent placenta, surpassing uterine atony and rupture.¹ The rise in cesarean deliveries and improved management of uterine atony contribute to this shift, with a higher risk linked to multiple previous cesarean sections. **Methods:** The study took place at Pravara Rural Hospital's Obstetrics and Gynecology department, analyzing data from gynecology patients. It used a prospective cross-sectional design with a purposive sample of 50 cases over two years. The research focused on peripartum hysterectomy cases to examine reasons and results within this tertiary care environment. **Results:** In a study involving 50 deliveries, peripartum hysterectomy was performed in all cases. Age distribution showed 22% were aged 20-25, 32% aged 25-30, and 46% were over 30 years old. Parity distribution revealed 76% were multipara and 24% were primipara, with 36.8% having previous cesarean sections. Antenatal care varied, with 16% having fewer than 3 visits, 64% having 3-6 visits, and 20% having more than 6 visits. Most cases (92%) were booked, while 8% were unbooked. Mode of delivery included 22% vaginal deliveries and 78% LSCS. Indications for peripartum hysterectomy were atonic postpartum hemorrhage (36%), placenta accreta (24%), uterine rupture (20%), placenta previa (8%), placenta percreta (6%), and sepsis (6%). Uterine rupture reasons included grand multiparity (40%), previous LSCS scar (30%), prolonged labor (20%), and fetal anomaly (10%). **Conclusion:** The study post-surgery showed high survival rates for mothers and fetuses, despite frequent complications. Many cases required ICU admission, emphasizing the severity. Uterine ruptures were linked to factors such as grand multiparity and previous cesarean scars. These findings stress the importance of thorough prenatal care and preparedness for childbirth complications.

KEYWORDS

Peripartum hysterectomy, indications, outcomes, tertiary care

INTRODUCTION

Emergency peripartum hysterectomy is a life-saving surgical procedure, which is performed to control massive postpartum hemorrhage. The incidence rate has estimated about 1.5 per 1,000 deliveries in developed countries.¹ Cesarean delivery is the major risk factor for peripartum hysterectomy and due to recently raising cesarean delivery rate and the increasing population with a scarred uterus, the incidence of emergency peripartum hysterectomy may indirectly increase. Historically, the most common indication cited for peripartum hysterectomy was uterine atony.^{2, 3} It is defined as hysterectomy, performed after caesarean delivery or in the immediate postpartum period. However, EPH may also be performed when a conservative treatment approach fails to arrest post delivery bleeding. In modern obstetrics, the overall incidences 0.05%, but there are considerable differences in incidence in different parts of the world depending on modern obstetric services, standards and awareness of antenatal care and the effectiveness of family planning activities of a given community.⁴

Obstetric hemorrhage continues to be the primary cause of maternal mortality and morbidity in developing countries and the most challenging complication that a clinician will face. In addition, obstetric hemorrhage is a major health problem and contributes to 25% of direct maternal deaths.¹ Indications for peripartum hysterectomy have changed throughout the years. In earlier reports,⁵ the major indications for EPH were uterine rupture and atony, but Sheiner et al⁶ listed placenta accreta as the leading cause of peripartum hysterectomy because of a higher rate of cesarean sections. The main complications related to emergency peripartum hysterectomy include transfusions, disseminated intravascular coagulation, infection and potential injury to the adjacent lower urinary tract and even maternal death.⁷ Maternal mortality rates reported from 1% to 6% , but some studies in regions with limited medical and hospital resources indicated that this rate is as high as 30%.⁸

The purpose of the present study was to determine the incidence, risk factors, indications, maternal and neonatal morbidity, mortality and complications of emergency peripartum hysterectomy performed at a tertiary teaching hospital in Dr.Vitthalrao Vikhe Patil's Pravara Medical College, Loni and to compare the results with other reports in literature.

METHODS:

This hospital-based prospective cross-sectional study was conducted

at the Department of Obstetrics and Gynaecology of Dr. Balasaheb VikhePatil Rural Medical College and Dr.Vitthalrao Vikhe Patil's Pravara Rural Hospital, Loni. The study included pregnant women admitted during their third trimester (beyond 28 weeks) to the Department of Obstetrics and Gynaecology at Dr. Vitthalrao Vikhe Patil's Pravara Rural Hospital, Loni, from November 2022 to March 2024. A total of 50 participants were selected based on the following criteria:

Inclusion Criteria:

- Patients from Obstetrics and Gynaecology dept. in DVVPPRH, Loni.
- Gestational age >28 weeks

Exclusion Criteria:

- Known case of Hepatic disease.
- Known case of Hemolytic Anaemias.
- Known case of Platelet disorders.
- Chronic renal Diseases.
- Patients undergoing emergency hysterectomy for Gynaecological reasons like Cancer, Sterilization etc

Methodology:

All the obstetrics emergency admissions which fulfilled the inclusion criteria during the study period were included in the study, after obtaining informed consent from the patient or their attendance, a semi structured questionnaire was being asked. History regarding age, parity, gestational age, menstrual history and previous illness were noted. A thorough general and other systemic examination was done with obstetric examination. All patients who met the above-mentioned criteria were included in the study and patients were admitted in the intensive care unit.

RESULTS

Demographic Profile And Obstetric History

The age distribution of the study population shows that 22% of the patients are aged 20 to 25 years(n=11), 32% are aged 25 to 30 years(n=16), and the majority, 46%, are over 30 years old(n=23). The parity distribution reveals that 76% of the study population are multipara(n=38), whereas 24% are primipara(n=12). Among the 38 multiparas, 36.8% had undergone previous caesarean section(n=14), while 63.2% had not(n=24). In the present study, 22% of the study population had vaginal deliveries(n=11), while 78% underwent lower segment cesarean sections(n=39).

Indications For Peripartum Hysterectomy:

In our current research, the reasons for peripartum hysterectomy encompass atonic postpartum hemorrhage (36%), placenta accreta (24%), uterine rupture (20%), placenta previa (8%), placenta percreta (6%), and sepsis (6%). This diverse range of reasons underscores the severe circumstances that lead to hysterectomy among the participants of this study.

Table 1: Indications For Peripartum Hysterectomy

Indication	Frequency	Percentage
Atonic PPH	18	36
Placenta accrete	12	24
Uterine rupture	10	20
Placenta previa	4	8
placenta percreta	3	6
Sepsis	3	6

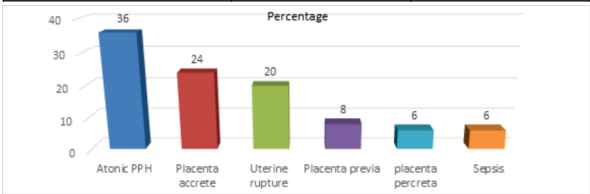


Figure 1- Indications For Peripartum Hysterectomy

Causes Of Uterus Rupture (n=10)

In our present study uterine rupture was seen in 10 cases. Grand multiparity was the cause in maximum number of case accountable for 40% (n=4) followed by previous caesarean section scar rupture which was seen in 30% of the cases (n=3). Prolonged labour was attributed to uterine rupture in 20% cases (n=2) and fetal anomaly was seen in 10% case (n=1).

Table 2: Causes Of Uterine Rupture.

Causes	Frequency	Percentage
Grand Multipara	4	40
Previous LSCS scar	3	30
Prolonged labor	2	20
Fetal anomaly	1	10
Total	10	100

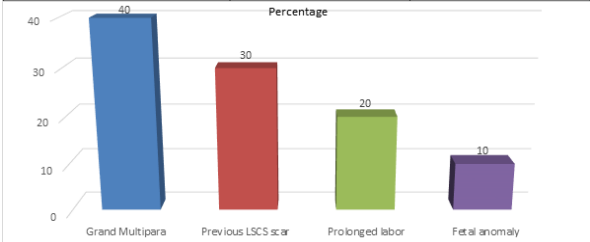


Figure 2: Causes of uterine rupture.

Distribution Depending On ICU Admission Required:

ICU admission was required for 32% of the study population (n=16), whereas 68% did not require ICU care (n=34). This shows that a significant minority of patients experienced complications necessitating intensive care. The mean duration of hospital stay for patients in the study is 9.2 days, with a standard deviation of 1.1 days.

Table 3: Distribution Depending On ICU Admission Required

ICU	Frequency	Percentage
Yes	16	32
No	34	68
Total	50	100

Complication After Peripartum Hysterectomy:

Post-hysterectomy complications included febrile illness (28%), Study by Kallianidis et al¹² was a descriptive, multinational, population-based study done in European country and the findings are as below:

Women's characteristics	Belgium (n=73)	Denmark (n = 44)	Finland (n = 72)	France (n = 98)	UK (n = 276)	Italy (n = 489)	Netherlands (n = 95)	Slovakia (n = 103)	Sweden (n = 52)
Uterine atony	29 (39.7%)	12 (27.3%)	17 (23.6%)	42 (42.9%)	98 (35.5%)	199 (40.7%)	34 (35.8%)	18 (17.5%)	10 (19.2%)
Abnormally invasive placenta	14 (19.2%)	17 (38.6%)	16 (22.2%)	23 (23.5%)	103 (37.3%)	188 (38.4%)	36 (37.9%)	30 (29.1%)	26 (50%)

urinary tract infection (24%), bladder injury (12%), septicemia (4%), and acute renal failure (4%). These figures highlight the range and frequency of complications encountered following the procedure.

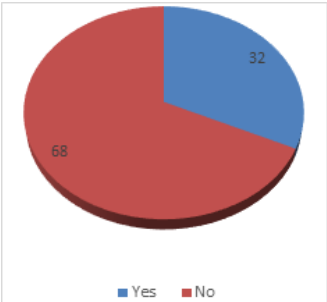


Figure 3: Distribution depending on ICU admission required

Table 4: Complication After Peripartum Hysterectomy

Complication	Frequency	Percentage
Febrile illness	14	28
Urinary tract infection	12	24
Bladder injury	6	12
Septicemia	2	4
Acute renal failure	2	4

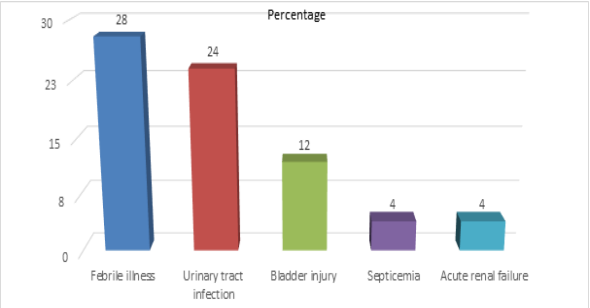


Figure 4: Complication After Peripartum Hysterectomy

Maternal Outcome Among The Study Population:

Among the study population, 90% of the mothers survived, while 10% died. This data underscores the high survival rate despite the serious conditions necessitating peripartum hysterectomy, with 5 out of 50 patients succumbing to complications.

Fetal Outcome:

The fetal outcome data shows that 98% of the fetuses survived, while 2% died. This indicates a high survival rate for fetuses, with only one fetal death out of the 50 cases studied.

Table 5: Fetal Outcome.

Outcome	Frequency	Percentage
Survived	49	98
Died	1	2
Total	50	100

DISCUSSION

The indications for peripartum hysterectomy include atonic postpartum hemorrhage (36%), placenta accreta (24%), uterine rupture (20%), placenta previa (8%), placenta percreta (6%), and sepsis (6%). This highlights the various critical conditions necessitating hysterectomy. Study by Aimagambetova G et al⁹ showed that leading indications were intrapartum hemorrhage (IPH) and postpartum hemorrhage (PPH), reported in 60% of the cases analyzed (IPH – 47.9%, PPH – 12.1%). The second most common indication was placental pathology, with placental abruption in 9.6% and placenta previa in 7.9% of cases.

Uterine rupture	10 (13.7%)	2 (4.5%)	17 (23.6%)	9 (9.2%)	17 (6.2%)	14 (2.9%)	10 (10.5%)	16 (15.5%)	3 (5.8%)
Unspecified hemorrhage	5 (6.8%)	0	11 (15.3%)	2 (2%)	0	44 (9%)	8 (8.4%)	16 (15.5%)	7 (13.5%)
Placenta previa	0	0	9(12.5%)	2 (2%)	41 (14.9%)	15 (3.1%)	4 (4.2%)	11 (10.7%)	2 (3.8%)
Placental abruption	0	2 (4.5%)	0	6 (6.1%)	2 (0.7%)	20 (4.1%)	0	2 (1.9%)	2 (3.9%)
Cervical laceration	0	6 (13.6%)	2 (2.8%)	0	2 (0.7%)	4 (0.8%)	1 (1.1%)	0	0
Fibroids	0	2 (4.5%)	0	0	1 (0.4%)	2 (0.4%)	1 (1.1%)	0	2 (3.8%)
DIC	0	0	0	6 (6.1%)	1 (0.4%)	1 (0.2%)	0	0	0
Infection	0	0	0	1 (1%)	0	0	1 (1.1%)	0	0
Other	2 (2.7%)	3 (6.8%)	0	7 (7.1%)	8 (2.9%)	2 (0.4%)	0	3 (2.9%)	0

Dr. Anju Dogra et al¹⁴ also showed similar findings like primary indication of peripartum hysterectomy in our study, in which 30% had Placental accrete, 6% had placenta percreta and 10% had placenta previa. Atonic PPH (32%) was the second most common indication followed by uterine rupture (18%). In one case hysterectomy was done because of uterine sepsis.

Distribution Depending on ICU Admission Required

ICU admission was required for 32% of the study population, whereas 68% did not require ICU care. This shows that a significant minority of patients needed intensive care. Study by Singla A et al¹³ showed that 39.1% required ICU admission.

Complications After Peripartum Hysterectomy

Post-hysterectomy complications included febrile illness (28%), urinary tract infection (24%), bladder injury (12%), septicemia (4%), and acute renal failure (4%). These figures highlight the range and frequency of complications following the procedure. Study by Patterson JA et al¹⁰ showed that maternal complications of postpartum haemorrhage include hypovolaemic shock, disseminated intravascular coagulopathy (DIC), renal failure, hepatic failure and acute respiratory distress syndrome (ARDS). Study by Singla A et al¹³ showed that 6.7% had bladder injury and 10% had DIC. Dr. Anju Dogra et al¹⁴ also showed similar findings like wound sepsis occurred in 6 patients (12%), postoperative fever in 4 patients (8%), and ileus in 5 patients (10%). Acute renal failure was observed in 3 patients (6%) due to excessive hemorrhage, while 2 patients (4%) developed ARDS. One patient experienced DIC. Additionally, bladder injury during hysterectomy was identified in six patients, all of which were repaired during surgery.

Maternal Outcome Among The Study Population

Among the study population, 90% of the mothers survived, while 10% died. This data underscores a high survival rate despite the serious conditions requiring peripartum hysterectomy. Study by Aimagambetova G et al⁹ showed 1.8% maternal mortality. Machado LS et al¹¹ in their study showed that maternal morbidity ranged from 26.5% to 31.5% and mortality was 12.5%. Study by Singla A et al¹³ showed that 14 (7.2%) maternal death occurred. Dr. Anju Dogra et al¹⁴ also showed 4 maternal death i.e. 8% and in study by Agarwal et al.¹⁵ reported a maternal mortality rate of 19.44%, while Varalakshmi et al.¹⁶ reported a rate of 14.28%.

Fetal Outcome

Among the 50 cases, 78% had a good fetal outcome, while 22% had a poor outcome. This suggests that the majority of the cases resulted in favorable outcomes for the newborns.

The perinatal mortality data shows a 98% survival rate for fetuses, with only 2% (one case) resulting in death. This indicates a high survival rate among the fetuses in the study population. Study by Singla A et al¹³ showed that 30.4% babies died due to some or other complications.

CONCLUSION

In conclusion, the study on peripartum hysterectomy highlights significant demographic variations among patients, with a predominance of older age groups and multiparas. Atonic postpartum hemorrhage emerged as the primary indication for surgery, reflecting the critical nature of complications leading to hysterectomy. Despite substantial post-operative complications, maternal survival rates were high at 90%, underscoring effective management strategies.

Fetal outcomes were also positive, with a 98% survival rate. These findings emphasize the need for nuanced approaches in managing

complex obstetric cases to minimize maternal mortality and optimize fetal health. Continued research is essential to enhance clinical strategies and mitigate risks associated with peripartum hysterectomy, ultimately improving outcomes in high-risk obstetric scenarios.

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Declarations

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Conflict Of Interest:

None declared.

Ethical Approval:

This study was approved by Institutional Ethics Committee.

REFERENCES

1. Forna F, Miles AM, Jamieson DJ. Emergency peripartum hysterectomy: A comparison of cesarean and postpartum hysterectomy. *Am J Obstet Gynecol.* 2004;190:1440–4.
2. Kwee A, Bots ML, Visser GH, Bruinse HW. Emergency peripartum hysterectomy: A prospective study in the Netherlands. *Eur J Obstet Gynecol Reprod Biol.* 2006;124:187–92.
3. Yucel O, Ozdemir I, Yucel N, Somunkiran A. Emergency peripartum hysterectomy: A 9-year review. *Arch Gynecol Obstet.* 2006;274:84–7.
4. Park EH, Sachs BP. Postpartum haemorrhage and other problems of third stage. In: James DK, Steer PJ, Weiner CP, Gonik B, eds. *High Risk Pregnancy—Management Options*, 2nd edition. Philadelphia: W.B. Saunders, 1999:1231–46.
5. Chestnut DH, Eden, RD, Gall SA, Parker RT. Peripartum hysterectomy: a review of cesarean and postpartum hysterectomy. *Obstet Gynecol.* 1985;65:365–70.
6. Engelsen I, Albechtsen S, Iversen O. Peripartum hysterectomy: incidence and maternal morbidity. *Acta Obstet Gynecol Scand.* 2001;80:409–12.
7. Baskett TF. Emergency obstetric hysterectomy. *J Obstet Gynaecol.* 2003;23:353–5.
8. Gould DA, Butler-Manuel SA, Turner MJ, Carter PG. Emergency obstetric hysterectomy—an increasing incidence. *J Obstet Gynaecol.* 1999;19:580–3.
9. (87) Aimagambetova G, Sakko Y, Gusmanov A, Issanov A, Ukybassova T, Bapayeva G, Marat A, Nurpeissova A, Gaipov A. The Prevalence, Incidence, Indications and Outcomes of Peripartum Hysterectomy in Kazakhstan: Data from Unified Nationwide Electronic Healthcare System 2014–2018. *Int J Womens Health.* 2022 Feb 21;14:267–278.
10. (92) Patterson JA, Roberts CL, Taylor LK, Ford JB. Reporting postpartum haemorrhage with transfusion: a comparison of NSW birth and hospital data. *N S W Public Health Bull.* 2014;24:153–158.
11. (93) Machado LS. Emergency peripartum hysterectomy: Incidence, indications, risk factors and outcome. *N Am J Med Sci.* 2011 Aug;3(8):358–61.
12. (94) Kallianidis, A. F., Maraschini, A., Danis, J., Colmorn, L. B., Deneux-Tharaux, C., & Donati, S. Epidemiological analysis of peripartum hysterectomy across nine European countries. *Acta Obstetrica et Gynecologica Scandinavica.* 2020; 99(10): 1364–1373.
13. (95) Singla A, Mundhra R, Phogat L, Mehta S, Rajaram S. Emergency Peripartum Hysterectomy: Indications and Outcome in a Tertiary Care Setting. *J Clin Diagn Res.* 2017 Mar;11(3):QC01–QC03.
14. (96) Dr. Anju Dogra, Dr. Suksham Sharma, Dr. Sunita Atri and Dr. Vinay Kumar. Analysis of Indications and outcome of emergency obstetric hysterectomy. *International Journal of Clinical Obstetrics and Gynaecology.* 2022; 6(1): 05–09.
15. (97) Agrawal S. Peripartum hysterectomy in a teaching hospital in India. *Asian J Med Sci.* 2014 Jul 1;4(1):5–9. 14.
16. Varalakshmi K, et al. *Int J Reprod Contracept Obstet Gynecol.* 2017 Dec;6(12):5602–5608.