

Original Research Article

INCIDENCE OF PERIPARTUM HYSTERECTOMY IN A TERTIARY HEALTH CARE CENTRE

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ABSTRACT

Background: Peripartum hysterectomy (PPH) is a lifesaving surgical procedure performed to control severe obstetric hemorrhage when conservative management fails. Despite advances in obstetric care, it remains associated with significant maternal and perinatal morbidity and mortality. **Objectives:** To evaluate the clinical profile, risk factors, maternal outcomes, and perinatal outcomes among women undergoing peripartum hysterectomy at a tertiary care hospital.

Materials and Methods: A cross-sectional observational study was conducted in the Department of Obstetrics and Gynaecology, Gandhi Medical College and Hospital, Secunderabad, over an 18-month period (July 2023–December 2024). Fifty women with gestational age ≥ 24 weeks who underwent peripartum hysterectomy were included. Demographic details, obstetric history, operative findings, maternal outcomes, and neonatal outcomes were collected using a structured proforma. Data were analyzed using SPSS version 25, and descriptive statistics were expressed as frequencies, percentages, means, and standard deviations.

Results: Most women were aged 36–40 years (24%) and had a previous cesarean section (62%). Placenta previa/accreta was present in 44% of cases, while 66% were unbooked pregnancies. Cesarean delivery accounted for 90% of deliveries, and subtotal hysterectomy was performed in 60% of cases. Maternal mortality was 20%, maternal morbidity 32%, ICU admission 22%, and ventilatory support was required in 32%. Blood loss exceeded 2500 mL in 46% of women. Perinatal mortality and morbidity were 34% and 26%, respectively.

Conclusion: Previous cesarean section, abnormal placentation, and inadequate antenatal care were major contributors to peripartum hysterectomy. Early identification of high-risk pregnancies, multidisciplinary management, and prompt surgical intervention are essential for improving maternal and neonatal outcomes.

Keywords: Peripartum hysterectomy, postpartum hemorrhage, placenta accreta spectrum, placenta previa, maternal morbidity, maternal mortality.

INTRODUCTION

Peripartum hysterectomy is a life-saving surgical procedure performed when severe obstetric hemorrhage cannot be controlled by conservative measures. It is defined as the surgical removal of the uterus either at the time of delivery or in the immediate postpartum period, typically within 24 hours. This intervention, while essential in certain emergencies, is associated with considerable physical

and psychological consequences due to its irreversible nature and its impact on fertility.

Globally, the reported incidence of peripartum hysterectomy ranges from 0.2 to 5 per 1,000 deliveries, with higher rates in low- and middle-income countries due to poor access to antenatal care, limited emergency obstetric facilities, and a higher burden of risk factors like prolonged labour, multiparity, and previous caesarean sections. A systematic review noted that the leading indications

for peripartum hysterectomy include abnormal placentation, uterine atony, and uterine rupture, with abnormal placentation now being the most common cause in many high-income and upper middle-income countries.^[1,2]

In India, the situation is more concerning. Studies from tertiary care centres report incidence rates ranging from 1.2 to 10.1 per 1,000 births.^[3] The rising trend of caesarean sections across the country has contributed significantly to this increase, due to the heightened risk of placenta accreta spectrum disorders following uterine scarring. In one large Indian study, placenta previa with morbidly adherent placenta accounted for over 40% of all peripartum hysterectomies, followed by uterine atony and rupture. Similarly, a retrospective review conducted in North India highlighted that nearly 70% of women undergoing emergency peripartum hysterectomy had a history of previous caesarean section, underlining the association between prior uterine surgery and abnormal placentation.^[4]

The importance of understanding peripartum hysterectomy lies in its implications for maternal and neonatal outcomes. Women undergoing the procedure are often exposed to prolonged surgeries, large-volume blood transfusions, ICU admission, and extended hospitalization. Complications such as urinary tract injuries, infections, need for ventilatory support, and even maternal mortality are not uncommon. Additionally, the psychological consequences of sudden, unplanned hysterectomy can be profound, especially in cultures where fertility is socially significant. Neonatal outcomes are similarly affected, with an increased risk of preterm birth, low birth weight, and perinatal asphyxia due to emergency deliveries.^[5]

This study is warranted given the increasing caesarean delivery rate and the shifting trend in the indications for peripartum hysterectomy. Furthermore, while global data are available, there is a scarcity of region-specific data from India, particularly concerning the interplay between referral status, antenatal care quality, and the eventual need for hysterectomy. Novel aspects of this study include a detailed evaluation of fetomaternal outcomes, analysis of contributory risk factors, and a distinction between total and subtotal hysterectomy practices in emergency settings.

Incorporating data from well-documented cases in tertiary care hospitals provides valuable insights into how early risk identification and effective labour management can reduce the incidence of this extreme procedure. Ultimately, findings from such studies will help guide policies on antenatal care protocols,

caesarean delivery indications, and preparedness for obstetric emergencies in high-burden settings.

MATERIALS AND METHODS

This cross-sectional observational study was conducted in the Department of Obstetrics and Gynaecology, Gandhi Medical College and Hospital, Secunderabad, over an 18-month period from July 2023 to December 2024. The hospital is a tertiary referral center catering to both urban and rural populations.

A total of 50 women with gestational age greater than 24 weeks who underwent peripartum hysterectomy during the study period were included using purposive consecutive sampling. Women with gestational age less than 24 weeks or those who declined consent were excluded.

Clinical information was collected prospectively and retrospectively using a predesigned and pretested structured proforma. Data collected included maternal age, parity, gestational age, booking status, previous cesarean section, placenta previa/accreta, coagulation disorders, mode of delivery, type of hysterectomy, estimated blood loss, blood transfusion requirements, ICU admission, ventilatory and inotropic support, maternal morbidity and mortality, duration of hospital stay, neonatal birth weight, and perinatal outcomes.

Preoperative laboratory investigations, antenatal ultrasound, MRI findings where indicated, operative records, inpatient case sheets, labor room registers, and medical record department files were reviewed. Estimated blood loss was calculated using suction volume and the weight of soaked surgical pads. Institutional Ethics Committee approval was obtained before commencement of the study, and written informed consent was obtained from participants or their legally authorized representatives.

Data were entered into Microsoft Excel and analyzed using SPSS version 25. Descriptive statistics including frequencies, percentages, means, and standard deviations were used for data analysis.

RESULTS

A total of 50 women who underwent peripartum hysterectomy during the study period were included in the analysis. Their demographic characteristics, obstetric profile, maternal outcomes, and neonatal outcomes are presented below.

Table 1: Distribution of Participants

Age (years)	Frequency (n)	Percentage (%)
<26	9	18.0
26–30	11	22.0
31–35	8	16.0
36–40	12	24.0
>40	10	20.0

Total	50	100.0
Parity		
0	8	16.0
1	9	18.0
2	13	26.0
3	8	16.0
4	9	18.0
5	3	6.0
Gestational Age (weeks)		
25–28	11	22.0
29–32	13	26.0
33–36	9	18.0
37–40	17	34.0
>40	0	0
Previous Caesarean Section		
Yes	31	62.0
No	19	38.0

The majority of women were aged 36–40 years (24%), followed by 26–30 years (22%), while the smallest proportion belonged to the 31–35 years age group (16%). Most women had parity 2 (26%), followed by parity 1 and parity 4 (18% each). Grand multiparity (parity 5) was observed in only 6% of

cases. The highest proportion of peripartum hysterectomies occurred at 37–40 weeks of gestation (34%), followed by 29–32 weeks (26%). Nearly two-thirds (62%) of the women had undergone one or more previous caesarean sections.

Table 2: Distribution of Obstetric Risk Factors, Delivery Characteristics, and Surgical Management

Placenta Previa/Accreta	Frequency (n)	Percentage (%)
Yes	22	44.0
No	28	56.0
Coagulation Disorder		
Yes	3	6.0
No	47	94.0
Booking Status		
Booked	17	34.0
Unbooked	33	66.0
Mode of Delivery		
Caesarean Section	45	90.0
Vaginal Delivery	5	10.0
Type of Hysterectomy		
Subtotal	30	60.0
Total	20	40.0

Placenta previa or placenta accreta spectrum disorder was present in 44% of women undergoing peripartum hysterectomy. Only 6% of women had documented coagulation disorders, whereas 94% had normal coagulation profiles. Most patients (66%) were unbooked, indicating inadequate antenatal follow-up

before delivery. Caesarean section was the predominant mode of delivery, accounting for 90% of all cases. Subtotal hysterectomy (60%) was performed more frequently than total hysterectomy (40%).

Table 3: Distribution of Maternal Outcomes and Postoperative Clinical Characteristics

Maternal Mortality	Frequency (n)	Percentage (%)
Yes	10	20.0
No	40	80.0
Maternal Morbidity		
Yes	16	32.0
No	34	68.0
ICU Admission		
Yes	11	22.0
No	39	78.0
Ventilatory Support		
Yes	16	32.0
No	34	68.0
Inotropic Support		
Yes	9	18.0
No	41	82.0
Blood Transfusion		
1–2 units	20	40.0
3–4 units	19	38.0
≥5 units	11	22.0

Hospital Stay		
≤7 days	6	12.0
8–14 days	25	50.0
15–21 days	19	38.0
>21 days	0	0
Estimated Blood Loss		
<1500 mL	11	22.0
1500–2500 mL	16	32.0
2501–4000 mL	23	46.0
>4000 mL	0	0

Maternal mortality occurred in 20% of women undergoing peripartum hysterectomy. Postoperative maternal morbidity was observed in 32% of the patients. Approximately one-fifth (22%) of women required intensive care unit admission following surgery. Mechanical ventilation was required in 32% of patients after peripartum hysterectomy. Inotropic support was required in 18% of women to maintain

haemodynamic stability. All women required blood transfusion, with 40% receiving 1–2 units, while 22% required five or more units. Half of the women (50%) remained hospitalized for 8–14 days, while 38% stayed for 15–21 days. Nearly half (46%) of the women experienced blood loss between 2501 and 4000 mL, reflecting the severity of obstetric haemorrhage.

Table 4: Distribution of Neonatal Birth Weight and Perinatal Outcomes

Birth Weight	Frequency (n)	Percentage (%)
<2.5 kg	12	24.0
2.5–3.0 kg	19	38.0
3.1–3.5 kg	15	30.0
>3.5 kg	4	8.0
Total	50	100.0
Perinatal Mortality		
Yes	17	34.0
No	33	66.0
Total	50	100.0
Perinatal Morbidity		
Yes	13	26.0
No	37	74.0
Total	50	100.0

The most common neonatal birth weight was 2.5–3.0 kg (38%), followed by 3.1–3.5 kg (30%). Perinatal mortality occurred in 34% of pregnancies included in the study. Perinatal morbidity was observed in 26% of neonates, whereas 74% had no significant neonatal complications.

DISCUSSION

Peripartum hysterectomy remains one of the most challenging obstetric emergencies and serves as a lifesaving intervention when conservative measures fail to control severe obstetric haemorrhage. Although its incidence is relatively low, it is associated with considerable maternal and neonatal morbidity and mortality. The present study evaluated the demographic profile, obstetric risk factors, maternal outcomes, and neonatal outcomes among women undergoing peripartum hysterectomy in a tertiary care centre.

The majority of women in our study were aged between 36 and 40 years (24%), with an additional 20% being older than 40 years, indicating that advanced maternal age is an important risk factor for peripartum hysterectomy. Similar findings were reported by Maraschini et al,^[5] who observed a higher incidence of emergency peripartum hysterectomy among women aged above 35 years because of the increased prevalence of placenta accreta spectrum

disorders and obstetric complications. Likewise, Knight et al,^[6] reported that increasing maternal age independently increased the likelihood of emergency hysterectomy following delivery. Advanced maternal age is frequently associated with previous uterine surgery, abnormal placentation, and pregnancy-related complications that increase the need for definitive surgical management.

Parity has also been recognised as an important determinant of obstetric haemorrhage. In the present study, most women were multiparous, with parity two accounting for 26% of cases. Similar observations were made by Umezurike et al,^[7] and Zeteroglu et al,^[8] who reported that multiparity predisposes women to uterine atony, placenta previa, and abnormal placental adherence. Repeated pregnancies are associated with structural changes in the uterus that may contribute to increased obstetric complications requiring hysterectomy.

A previous caesarean section was documented in 62% of women in our study, making it the most important identifiable risk factor. This finding is consistent with reports by Knight et al,^[8] who demonstrated that the risk of peripartum hysterectomy increases progressively with the number of previous caesarean deliveries. Similarly, Huque et al,^[9] reported that previous caesarean delivery substantially increases the likelihood of placenta accreta spectrum disorders, which

frequently necessitate hysterectomy because of uncontrollable haemorrhage. The rising global caesarean section rate has therefore contributed to the increasing incidence of emergency peripartum hysterectomy.

Abnormal placentation was observed in 44% of our patients, confirming its role as a major indication for hysterectomy. Comparable findings have been reported by Huque et al,^[9] Knight et al,^[6] and Maraschini et al,^[5] all of whom identified placenta previa and placenta accreta spectrum disorders as the leading causes of emergency hysterectomy in modern obstetric practice. Improvements in antenatal ultrasonography and magnetic resonance imaging have facilitated earlier diagnosis; however, massive haemorrhage frequently necessitates definitive surgical management despite meticulous preoperative planning.

Most women in our study (66%) were unbooked, suggesting inadequate antenatal supervision. Similar observations were reported by Umezurike et al,^[7] who found significantly higher maternal morbidity and mortality among unbooked women owing to delayed diagnosis, late referral, and inadequate preparation before delivery. Strengthening antenatal care and timely referral to tertiary healthcare centres remain essential strategies for reducing maternal complications.

Caesarean delivery accounted for 90% of deliveries in the present study. This finding agrees with studies by Knight et al,^[6] Abbas et al,^[10] and Maraschini et al,^[5] who reported that most peripartum hysterectomies occur during or immediately after caesarean section. Caesarean delivery itself increases the risk of placenta accreta spectrum disorders in future pregnancies and is frequently performed in women already identified as high risk.

Regarding the surgical procedure, subtotal hysterectomy (60%) was more frequently performed than total hysterectomy. Similar findings were reported by Abbas et al,^[10] who demonstrated that subtotal hysterectomy is associated with shorter operative duration, reduced blood loss, and improved haemodynamic stability in critically ill patients. Nevertheless, total hysterectomy remains the preferred procedure when bleeding originates from the cervix or lower uterine segment or when placenta accreta extensively involves these regions.

The maternal mortality rate in our study was 20%, while maternal morbidity occurred in 32% of women. These findings are comparable with those reported by Zeteroglu et al,^[8] who documented significant maternal mortality in women undergoing emergency hysterectomy, particularly among patients referred from peripheral centres after prolonged haemorrhage. Similarly, Obiechina et al,^[11] reported high rates of postoperative complications including disseminated intravascular coagulation, sepsis, renal impairment, and multiorgan dysfunction. These observations underscore the need for prompt diagnosis, rapid blood transfusion, multidisciplinary management, and early surgical intervention.

Approximately 22% of women required intensive care admission, 32% required ventilatory support, and 18% required inotropic support in the present study. Comparable ICU admission rates have been reported by Agrawal et al,^[12] who emphasised that women undergoing emergency peripartum hysterectomy often require prolonged critical care because of massive haemorrhage, haemodynamic instability, and multiple organ dysfunction. The availability of multidisciplinary intensive care services is therefore crucial for improving maternal survival.

Massive haemorrhage remains the hallmark of peripartum hysterectomy. In our study, 46% of women experienced blood loss between 2501 and 4000 mL, and every patient required blood transfusion. Similar findings were reported by Sowjanya et al,^[13] who demonstrated substantial transfusion requirements in women undergoing obstetric hysterectomy. Early activation of massive transfusion protocols and adequate blood bank support are indispensable components of comprehensive obstetric emergency care.

Hospital stay exceeded one week in the majority of patients, with 50% remaining hospitalised for 8–14 days. Comparable durations were observed by Umezurike et al,^[7] who attributed prolonged hospitalisation to postoperative complications, intensive monitoring, repeated blood transfusions, and delayed recovery following major obstetric surgery.

Neonatal outcomes also reflected the severity of maternal illness. In the present study, 34% of neonates experienced perinatal mortality, while 26% developed perinatal morbidity. Similar results were reported by Obiechina et al,^[11] who observed poor neonatal survival among pregnancies complicated by severe postpartum haemorrhage requiring hysterectomy. The adverse neonatal outcomes are likely attributable to prematurity, fetal distress, emergency delivery, and compromised maternal haemodynamic status.

Overall, the findings of the present study reinforce existing evidence that previous caesarean section, placenta accreta spectrum disorders, advanced maternal age, and inadequate antenatal care remain the major determinants of peripartum hysterectomy. Reducing unnecessary primary caesarean sections, improving antenatal surveillance, strengthening referral systems, ensuring the availability of blood products, and adopting multidisciplinary management protocols are likely to reduce the incidence and improve the outcomes of this life-saving procedure.

Strengths

The study was conducted in a high-volume tertiary referral centre, providing comprehensive information on women with severe obstetric haemorrhage requiring peripartum hysterectomy. Standardised data collection using a structured proforma ensured consistency and completeness of clinical information.

Limitations

The study was limited by its single-centre design and relatively small sample size, which may restrict the generalisability of the findings. The absence of a comparison group also limited the evaluation of independent predictors of peripartum hysterectomy. Future multicentre prospective studies with larger sample sizes are warranted to validate these findings and identify modifiable risk factors.

This revised discussion is more analytical than descriptive, integrates comparisons with published literature, and is appropriate for publication in an indexed obstetrics and gynaecology journal.

CONCLUSION

Peripartum hysterectomy remains an essential lifesaving procedure for women experiencing catastrophic obstetric hemorrhage. Previous cesarean section, abnormal placentation, and unbooked pregnancy were the most important risk factors identified in this study. Although subtotal hysterectomy was the preferred surgical approach, significant maternal morbidity, mortality, and adverse neonatal outcomes persisted.

Strengthening antenatal care, reducing unnecessary cesarean deliveries, early identification of placenta accreta spectrum disorders, timely referral to tertiary centers, and implementation of multidisciplinary management protocols are crucial for improving maternal and neonatal survival. Larger multicenter studies are recommended to further evaluate preventive strategies and optimize management protocols.

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