EXAMINING PLACENTA ACCRETA, PERCRETA, AND INCRETA IN PERIPARTUM HYSTERECTOMIES: A RETROSPECTIVE CROSS-SECTIONAL STUDY.

Seeba Hussain
Head of Department, Department of Obstetrics & Gynaecology, Katihar Medical College, Katihar, Bihar, India

ABSTRACT
Background
Abnormal placentation, encompassing placenta accreta, increta, and percreta, poses significant risks to maternal health, necessitating prompt diagnosis and management. With increasing cesarean delivery rates contributing to rising incidences of these conditions, understanding their clinical characteristics, management approaches, and outcomes in peripartum hysterectomies is crucial. The study seeks to investigate the incidence, clinical characteristics, association, and outcomes of placenta accreta, percreta, and increta in peripartum hysterectomies.

Methods
A retrospective cross-sectional study was conducted in which 40 participants meeting inclusion criteria, such as antenatal diagnoses of abnormal placentation or relevant obstetric histories, were included. Clinical data were collected from histology requisition forms, with statistical analysis achieved using SPSS version 21.0.

Results
The study revealed a notable incidence of abnormal placentation, with placenta accreta being the most common (62.5%). Clinical presentations varied, with antepartum hemorrhage predominating (70%). Peripartum hysterectomy emerged as the primary management strategy, yielding favorable maternal outcomes overall. Statistical analysis identified associations between previous cesarean sections and abnormal placentation incidence, highlighting the importance of risk mitigation strategies ($p < 0.05$).

Conclusion
Abnormal placentation remains a significant concern in peripartum care, necessitating a multidisciplinary approach for optimal management. Early diagnosis, prompt intervention, and ongoing research are essential to improve maternal outcomes and minimize complications associated with these conditions.

Recommendations
Healthcare providers should prioritize early and accurate diagnosis, adopt a multidisciplinary approach to management, and focus on mitigating risk factors such as previous cesarean sections. Continued research and education are essential for refining treatment strategies and improving outcomes for women affected by abnormal placentation.

*Corresponding Author: Seeba Hussain**
Email: hussainseeba8@gmail.com
Head of Department, Department of Obstetrics & Gynaecology, Katihar Medical College, Katihar, Bihar, India.

INTRODUCTION

Examining the spectrum of placenta accreta, percreta, and increta within the context of peripartum hysterectomies presents a critical area of study due to the significant maternal morbidity and mortality associated with these conditions. Disorders known as placenta accreta spectrum (PAS) are typified by the placenta adhering abnormally to the uterine wall, to differing degrees of invasion. The placental villi's surface attachment to the myometrium without any penetration is known as placenta accreta. The most severe form, placenta percreta, happens when the placental villi pierce through the myometrium and into or through the serosa, potentially involving nearby organs like the bladder. Placenta increta is characterized by the invasion of the placental villi deep into the myometrium [1].

The incidence of PAS disorders has been rising, attributed in part to the increasing rates of cesarean deliveries and other uterine surgeries, which predispose the uterine wall to abnormal placentation in subsequent pregnancies [2]. This increase underscores the importance of early and accurate diagnosis, which often relies on ultrasound and magnetic resonance imaging (MRI), to plan for a multidisciplinary approach to management that may include preoperative planning, intraoperative strategies to control hemorrhage, and considerations for fertility preservation [3].

Peripartum hysterectomy, the surgical removal of the uterus at the time of delivery, remains a definitive treatment for PAS disorders when conservative management fails or in cases where the placental invasion is extensive and associated with life-threatening

hemorrhage. This procedure, while life-saving, carries significant risks, including massive blood loss, the need for blood transfusions, and potential damage to surrounding organs, highlighting the complexity of care for affected women [4].

The management of PAS disorders requires a coordinated approach encompassing obstetricians, maternal-fetal medicine specialists, anesthesiologists, and interventional radiologists, among others, to optimize maternal outcomes and minimize complications. Research and clinical guidelines continue to evolve, emphasizing the need for ongoing education and adaptation of best practices in the care of patients with these challenging conditions [5].

The study aimed to retrospectively investigate the incidence, clinical characteristics, association, and outcomes of placenta accreta, percreta, and increta in peripartum hysterectomies.

METHODOLOGY
Study Design
A retrospective cross-sectional study.

Study Setting
The study was carried out at Katihar Medical College, Katihar, Bihar, India, spanning from February 2022 to August 2023.

Participants
A total of 40 participants were included in the study after applying the selection criteria.

Inclusion Criteria
Women who had received an ultrasound diagnosis of abnormal placentation before delivery or those who were pregnant and had a history of placenta previa, multiple pregnancies, hypertension, prior cesarean sections, advanced maternal age, or pre-eclampsia before delivery were among the participants.

Exclusion Criteria
Participants with spontaneous placental separation intraoperatively or those with other uterine pathologies necessitating hysterectomy.

Bias
Efforts were made to mitigate bias by ensuring comprehensive data collection. From histology request forms, clinical information and pertinent obstetric and gynecological history were carefully recorded.

Variables
Data collected included demographic information, clinical characteristics, management approaches, and outcomes associated with placenta accreta, percreta, and increta in peripartum hysterectomies.

Data Collection
In the study, microscopic evaluation played a crucial role in the diagnosis and characterization of abnormal placentation. Hematoxylin and eosin-stained sections were meticulously examined to assess the structural integrity of the placental tissue and its relationship with the uterine wall. When there was no discernible decidual layer between the placental villi and the myometrium, indicating aberrant placental adhesion to the uterine wall, the diagnosis of placenta accreta was established. In cases of placenta increta, microscopic evaluation revealed deep myometrial invasion, with placental villi penetrating the myometrium. Placenta percreta, the most severe form, was identified by the presence of myometrial perforation, where placental villi extended beyond the myometrium and potentially invaded adjacent structures such as the serosa or adjacent organs.

Statistical Analysis
Statistical analysis was conducted to analyzed using SPSS version 21.0. Descriptive statistics and inferential tests were employed as appropriate to explore relationships and draw conclusions from the data. A p-value of < 0.05 was regarded as a significant value.

Ethical considerations
The study protocol was approved by the Ethics Committee and written informed consent was received from all the participants.

RESULT
Among the 40 participants enrolled in the study, the age distribution ranged from 20 to 40 years, with the majority falling between 25 to 35 years old. The demographic profile of the participants is mentioned in table 1. Approximately 22 participants (55%) had undergone previous cesarean sections, indicating a potential risk factor for abnormal placentation. Furthermore, 8 participants (20%) had a history of placenta previa, while 12 participants (30%) reported a history of hypertension during pregnancy.

Table 1: Participants characteristics

Characteristic	Number of Participants
Age (years), Mean ± SD	29.5 ± 5.8
20-25	5
25-30	15
30-35	12
35-40	8
Previous Cesarean Section	22
History of Placenta Previa	8
History of Hypertension during Pregnancy	12

The study revealed a notable incidence of abnormal placentation (table 2) among the participants. Placenta accreta was the most commonly diagnosed condition, affecting 15 participants (62.5%). Placenta increta and placenta percreta were also observed, with 10 cases (25%) and 5 cases (12.5%), respectively. These findings underscore the significant burden of abnormal placentation in the peripartum population.

Table 2: Incidence of Abnormal Placentation

Type of Abnormal Placentation	Number of Cases	Percentage
Placenta Accreta	25	62.5%
Placenta increta	10	25.0%
Placenta Percreta	5	12.5%
Total	40	100.0%

The clinical presentation of participants with abnormal placentation varied, reflecting the complexity of the condition. Antepartum hemorrhage was the most frequently reported symptom, affecting 28 participants (70%), followed by uterine tenderness in 18 participants (45%) and abdominal pain in 14 participants (35%). Ultrasound imaging consistently revealed abnormal placental morphology in all cases, with varying degrees of myometrial invasion observed across the different types of abnormal placentation.

Table 3: Clinical presentations

Clinical Symptom	Number of Participants	Percentage
Antepartum Hemorrhage	28	70%
Uterine Tenderness	18	45%
Abdominal Pain	14	35%

Overall, the maternal outcomes following peripartum hysterectomy were favorable, with no reported cases of maternal mortality in this cohort. However, several participants experienced postoperative complications, including the need for blood transfusions in 10 cases (25%), wound infections in 4 cases (10%), and prolonged hospital stays exceeding seven days in 6 cases (15%). Neonatal outcomes varied, with some cases of preterm birth and low birth weight observed among infants delivered prematurely due to maternal indications.

Statistical analysis revealed significant associations between certain demographic factors and the incidence of abnormal placentation. Specifically, a history of previous cesarean sections was found to be strongly associated with the development of abnormal placentation (p < 0.05). Additionally, advanced maternal age emerged as a significant risk factor for placenta percreta (p < 0.05). However, no significant associations were observed between other demographic variables, such as parity or maternal comorbidities, and the incidence of abnormal placentation.

DISCUSSION

The study encompassed 40 participants, predominantly aged between 25 to 35 years, with a mean age of 29.5 years and a standard deviation of 5.8 years. A notable incidence of abnormal placentation was observed among participants, with placenta accreta being the most common condition diagnosed in 62.5% of cases, followed by placenta increta (25%) and placenta percreta (12.5%). Clinical symptoms varied, with antepartum hemorrhage being the most frequently reported (70%), followed by uterine tenderness (45%) and abdominal pain (35%). Despite no reported cases of maternal mortality following peripartum hysterectomy, postoperative complications were noted, including blood transfusions (25%), wound infections (10%), and prolonged hospital stays (15%).

Statistical analysis revealed significant associations between a history of previous cesarean sections and the development of abnormal placentation ($p < 0.05$), as well as between advanced maternal age and placenta percreta ($p < 0.05$). However, no significant associations were found between other demographic variables and the incidence of abnormal placentation.

These findings highlight the complexity and clinical implications of abnormal placentation, emphasizing the importance of early detection and management strategies in peripartum care.

The increasing prevalence of placenta accreta, percreta, and increta poses significant challenges for maternal healthcare, particularly in the context of peripartum hysterectomies. In a retrospective study in Northeast India, researchers found a notable correlation between the frequency of abnormal placentation and specific maternal risk factors. The study revealed that multiparous females with a history of placenta previa and previous lower-segment cesarean sections were at a heightened risk of developing placenta accreta, percreta, or increta. This finding underscores the importance of thorough prenatal screening in women with these risk factors to anticipate and prepare for potential complications during delivery [6]. Another study focused on the management of placenta percreta by advocating for a planned cesarean hysterectomy with the placenta left in situ. This approach aimed to minimize blood loss, a critical concern in such cases, thereby reducing the risk of maternal mortality and morbidity. The study's recommendations highlight the need for meticulous surgical planning and the potential benefits of conservative placental management in selected cases [7].

A comprehensive retrospective analysis further emphasized the association between previous cesarean deliveries, placenta previa, and pre-eclampsia with the occurrence of abnormal placentation. The study found that these conditions were more prevalent among multiparous women, suggesting that a history of cesarean sections significantly contributes to the risk of developing placenta accreta spectrum disorders. This insight is crucial for informing clinical practices and patient counseling, especially in regions with high rates of cesarean deliveries [8].

Moreover, a study in North India presented an optimistic view of managing placenta accreta spectrum (PAS) pregnancies through a multidisciplinary approach. The research demonstrated that with coordinated care involving obstetricians, surgeons, and other specialists, maternal and neonatal outcomes in PAS pregnancies could be comparable to those in developed countries. This finding is particularly encouraging, as it suggests that effective management strategies can significantly mitigate the risks associated with these complex conditions, even in resource-limited settings [9]. The findings of the study hold promise for broader generalizability with a larger sample size. While the current study provides valuable insights into the incidence, clinical characteristics, management strategies, and outcomes of abnormal

placentation in peripartum hysterectomies within a specific setting, expanding the sample size could enhance the external validity of the results. With a larger and more diverse sample, encompassing multiple institutions and geographic regions, it becomes possible to capture a more comprehensive representation of the population affected by abnormal placentation. This would allow for more robust statistical analyses and a better understanding of the factors influencing maternal outcomes across different demographic and clinical contexts. Additionally, a larger sample size would enable subgroup analyses to explore variations in presentation, management, and outcomes among distinct patient populations, ultimately contributing to the development of more targeted and effective interventions for women with abnormal placentation.

CONCLUSION

The study sheds light on the prevalence, clinical characteristics, management strategies, and outcomes of abnormal placentation in peripartum hysterectomies. The incidence of PAS disorders, including accreta, increta, and percreta, was notable in the study population, emphasizing the significant burden these conditions pose. Clinical presentations varied, with antepartum hemorrhage being the most common symptom. Peripartum hysterectomy emerged as the primary management approach, with favorable maternal outcomes overall, despite postoperative complications. Statistical analysis identified associations between previous cesarean sections and the incidence of abnormal placentation, as well as advanced maternal age and placenta percreta. These findings underscore the importance of early diagnosis, multidisciplinary management, and ongoing research to optimize care for women with PAS disorders.

Generalizability

The findings of this study cannot be generalized for a larger sample population.

Limitations

The limitations of this study include a small sample population who were included in this study. Furthermore, the lack of a comparison group also poses a limitation for this study's findings.

Recommendation

Based on the findings of the study, several recommendations can be made to enhance the management of abnormal placentation in peripartum women. Firstly, healthcare providers should prioritize early and accurate diagnosis using ultrasound and magnetic resonance imaging (MRI) to facilitate timely intervention. Additionally, a multidisciplinary approach involving obstetricians, maternal-fetal medicine specialists, anesthesiologists, and interventional radiologists is crucial for optimizing maternal outcomes

and minimizing complications. Furthermore, efforts should be directed towards mitigating risk factors such as previous cesarean sections and advanced maternal age through appropriate counseling and preconception care. Lastly, ongoing research and educational initiatives are needed to further understand the pathophysiology of PAS disorders and refine treatment strategies.

Acknowledgment

List of abbreviations:
PAS: Placenta Accreta Spectrum
MRI: Magnetic Resonance Imaging

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Conflict of interest
The authors have no competing interests to declare.

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