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SURGICAL APPROACHES IN MORBIDLY ADHERENT PLACENTA: A COMPARATIVE ANALYSIS OF MYOMETRIAL RESECTION AND CAESAREAN SECTION HYSTERECTOMY

Dr Humeera Naz[1], Dr Bakth Ranra[2]*, Dr Parveen Shafi[3], Dr Faiza Naz[4], Dr Zul-E-Huma[5], Dr Aneesa Sadiq[6]

[1,5,6] Assistant Professor Gynae Department, Gajju Khan Medical College MTI, Shamansoor Swabi - Pakistan
[2]*Medical Officer Gynae Department, Batcha Khan Medical Complex, Shamansoor Swabi - Pakistan
[3]HOD, Assistant Professor Gynae Department, Gajju Khan Medical College MTI, Shamansoor Swabi - Pakistan
[4]Gynecologist, Mardan Medical Complex, Mardan - Pakistan

***Corresponding author:** Dr Bakth Ranra
*Medical Officer Gynae Department, Batcha Khan Medical Complex, Shamansoor Swabi – Pakistan, Email: drranra2@gmail.com

Abstract

Introduction: Morbidly adherent placentas pose serious health risks, often requiring hysterectomy during caesarean section. Recent research suggests myometrial resection as a potential alternative, especially for women planning future pregnancies, warranting a comprehensive comparison to inform evidence-based surgical strategies.

Objective: To assess the effectiveness and safety of surgical procedures for morbidly adherent placentas, this study will conduct a comprehensive comparative analysis of myometrial excision and caesarean hysterectomy.

Methodology: This prospective observational study was conducted at Bacha Khan Medical Complex from January, 2020 to December, 2022. Fifty people having a history of severe adherent placentas were part of the research group. Group B consisted of 35 patients who had myometrial excision, whereas group A consisted of 15 patients who underwent cesarean hysterectomy. Details regarding the procedure's type (elective or emergency), booking status, blood loss, additional compression sutures needed, post-procedure hospital stay, transfusion requirements, and complications were recorded using a self-created form. SPSS version 23 was used to do the statistical analysis.

Result: The study compared outcomes in two groups (Group A, n=15, and Group B, n=35) undergoing surgical procedures for morbid adherent placentas. Significant differences were observed in age distribution, mode of surgery, booking status, and parity. Clinical measures revealed significant disparities in blood transfusion requirements (p=0.003) but non-significant differences in postoperative hospital stay and gestational age of termination of pregnancy (TOP). Group B exhibited higher incidences of bladder injury, blood loss, re-laparotomy, and postoperative infections, highlighting the need for tailored approaches in managing complications associated with morbid adherent placentas in diverse patient cohorts.

Conclusion: There were less complications after myometrial resection compared to cesarean hysterectomy, including infection, blood loss, bladder damage, and relaparotomies, making it a safer and more reliable option.

Key Words: morbidly adherent placenta, myometrial incision. cesarean section

Introduction

Maternal and newborn face major hurdles when dealing with an uncommon but potentially fatal case of morbidly adhered placenta. Abnormal placental tissue invasion into the uterine wall is the hallmark of this disorder, which includes placenta accreta, increta, and percreta. This can result in bleeding, organ damage, and increased morbidity and mortality rates for mothers. Recent years have seen an increase in the occurrence of morbidly adherent placentas, which calls for a detailed investigation of the best surgical techniques to reduce related dangers.[1]

The most common treatment for a morbidly adherent placenta in the past has been a caesarean section hysterectomy, which is frequently done to stop potentially fatal bleeding.[2] There are important concerns over the relative effectiveness, safety, and results of these two surgical procedures, though, as new data points to the possibility that myometrial resection may be a good substitute.[3]

In the context of a morbidly adherent placenta, the main objective of this study is to add to the body of knowledge by performing a thorough comparative analysis of myometrial resection and caesarean section hysterectomy. We hope to offer insightful information that can support evidence-based clinical decision-making and assist practitioners in selecting the best surgical strategy for each unique case by looking at important factors like intraoperative complications, blood loss, postoperative recovery, and long-term outcomes. The justification for investigating myometrial resection is its possible benefits over hysterectomy via cesarean section.[4]

Myometrial resection, which may be especially helpful for women hoping to become pregnant in the future, is carefully removing the invading uterine wall while maintaining the uterus. Furthermore, the process can lessen the possibility of developing some hysterectomy-related postoperative problems, like hormone imbalances and pelvic floor dysfunction.[5]

Nonetheless, because of its superior ability to manage bleeding and lower maternal mortality, cesarean section hysterectomy has long been accepted as the gold standard of care for patients with a morbidly attached placenta.[6] However, there are hazards associated with treatment, such as an increased risk of blood transfusions, lengthier hospital stays, and psychological effects from infertility loss.[7]

By comparing the effectiveness of myometrial resection and caesarean section hysterectomy in managing morbidly adherent placenta, this research aims to make a significant contribution to the field of obstetrics.[8] This study aims to enhance patient care, improve clinical practice, and expand our knowledge of the complexity related to this obstetric problem by carefully examining surgical outcomes and their effects on mother health.

Materials and Methods

Study Design: This prospective observational study was conducted at the gynecology department of Bacha Khan Medical Complex over a two-year period from January 2020 to December 2022.

Data Collection: Convenience sampling technique was done for data collection. Thorough physical examinations, comprehensive medical history assessments, and necessary laboratory tests were conducted as part of the data collection process.

Inclusion and Exclusion Criteria: The study comprised a final sample size of 50 participants out of 70 participants selected through a rigorous application of inclusion and exclusion criteria. Inclusion criteria encompassed patients diagnosed with morbid adherent placentas who provided informed consent for the study. Exclusion criteria ensured the exclusion of placentas from patients without a diagnosis of morbid adherent placentas and individuals who did not provide informed consent. The selected cohort underwent comprehensive physical examinations, medical history assessments, and relevant laboratory tests as part of the data collection process. Participants were categorized into two

groups based on the surgical procedures undergone: Group A (myometrial resection) and Group B (cesarean hysterectomy). The final dataset, derived from thorough data collection using a self-designed proforma, included information on elective or emergency operations, blood loss, extra compression suture requirements, length of hospital stay post-surgery, need for blood transfusion, and morbidity. The sample's homogeneity, ensured through stringent inclusion and exclusion criteria, contributes to the study's internal validity and the reliability of the observed outcomes.

Data Collection Instruments: A self-designed proforma was utilized for comprehensive data collection, encompassing details on the type of operation (elective or emergency), booking status, blood loss, the requirement for extra compression sutures, length of hospital stay post-surgery, need for blood transfusion, and morbidity.

Statistical Analysis: The data analysis was carried out using SPSS version 23.0. Categorical variables were found using percentages and frequencies, whereas numerical variables were found using mean and standard deviation. A p-value of less than 0.05 was deemed statistically significant when using the t-test for comparisons.

Ethical Considerations: The study was conducted in accordance with ethical standards as it was approved by the Institutional Review Board (IRB). In accordance with the principles outlined in the Helsinki Declaration, all participants were asked to provide written informed consent.

Results

The figure illustrates the distribution of patients in Group A (N=15) and Group B (N=35) across different age groups. In Group A, 13.33% were aged <30 years, 53.33% were aged 30-40 years, and 33.33% were >40 years. In contrast, Group B had 28.57% aged <30 years, 57.14% aged 30-40 years, and 14.29% aged >40 years. The p-value associated with age distribution is highly significant at 0.001, indicating a statistically significant difference in the age composition between the two groups (table 1). These findings emphasize the importance of considering age as a potential factor influencing outcomes in patients undergoing surgical procedures for morbid adherent placentas, highlighting distinct age-related patterns in Group A and Group B.

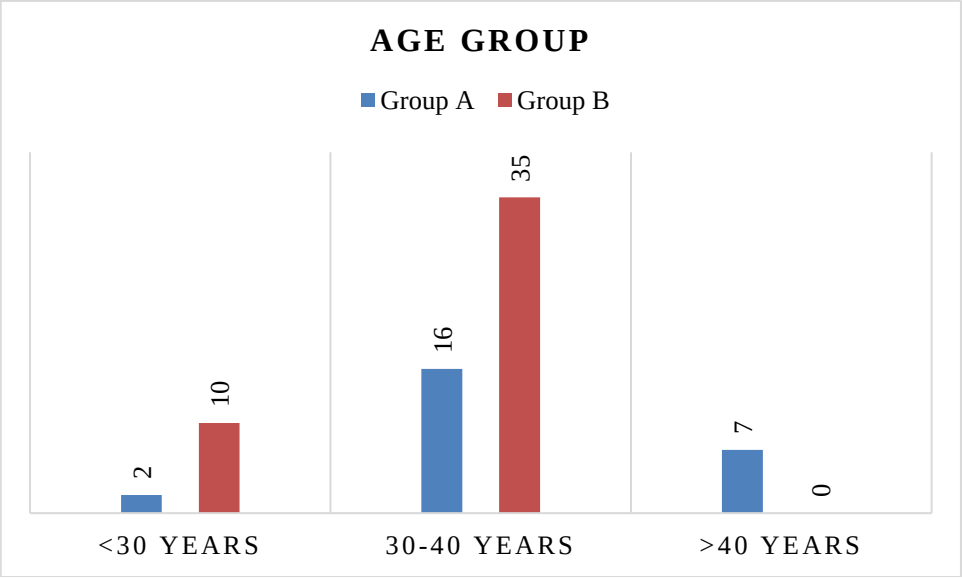

Figure 1: Participants distribution on age basis

In evaluating the mode of surgery, 46.67% of Group A underwent elective procedures compared to 40.00% in Group B, and 53.33% in Group A had emergency surgeries compared to 60.00% in Group B (Table 1). The associated p-value of 0.033 highlights a statistically significant distinction in the mode of surgery between the two groups. Additionally, differences in booking status and parity are evident, with statistically significant p-values of 0.054 and 0.068, respectively, underscoring variations in these variables between Group A and Group B. These findings emphasize the importance

of stratifying patient characteristics when assessing surgical outcomes in the context of morbid adherent placentas.

The table 1 provides key clinical outcome measures for Group A (N=15) and Group B (N=35) following surgical procedures for morbid adherent placentas. In terms of the average number of blood transfusions, Group A received 5 ± 1.2 units, whereas Group B received 3 ± 1.2 units, indicating a statistically significant difference with a p-value of 0.003. This substantial contrast underscores potential variations in blood transfusion requirements between the two surgical groups. The average postoperative hospital stay was 6.6 ± 2.5 days for Group A and 7 ± 1.3 days for Group B, with a p-value of 0.052, suggesting a non-significant difference in the duration of hospitalization. The mean gestational age of termination of pregnancy (TOP) was 33 ± 4 days for Group A and 37 ± 1.5 days for Group B, showing no statistically significant difference with a p-value of 0.531. These clinical outcome measures contribute valuable insights into the differences in blood transfusion requirements and postoperative recovery between the two surgical groups.

Table 1: Descriptive statistics of the demographic characteristics of the patients (n=50)

Variables		**Group A (N=15)**	**% Group A**	**Group B (N=35)**	**% Group B**	**p-value**
Age Groups	<30 years	2	13.33%	10	28.57%	0.001
	30-40 years	8	53.33%	20	57.14%	
	>40 years	5	33.33%	5	14.29%	
Mode of Surgery	Elective	7	46.67%	14	40.00%	0.033
	Emergency	8	53.33%	21	60.00%	
Booking Status	Booked	6	40.00%	11	31.43%	0.054
	Un-booked	9	60.00%	24	68.57%	
Parity	Nulliparous	0	0.00%	7	20.00%	0.068
	Multiparous	6	40.00%	18	51.43%	
	Grand Multiparous	9	60.00%	10	28.57%	
Average number of blood transfusion		5 ± 1.2 units	-	3 ± 1.2 units	-	0.003
Average postoperative Hospital Stay		6.6 ± 2.5 days	-	7 ± 1.3 days	-	0.052
Mean gestational age of TOP		33 ± 4 days	-	37 ± 1.5 days	-	0.531

Table 2 presents post-operative complications among two groups (Group A, n=15, and Group B, n=35) following surgical procedures for morbid adherent placentas. In Group A, 4 patients (16.0%) experienced bladder injury, 6 (24.00%) had blood loss exceeding 2000 ml, 2 (8.0%) underwent re-laparotomy, 3 (12.0%) developed postoperative infections, and no cases of hematoma formation were reported. In contrast, Group B exhibited a higher incidence of complications with 11 patients (31.43%) reporting bladder injury, 14 (40.00%) experiencing blood loss exceeding 2000 ml, 13 (37.14%) undergoing re-laparotomy, and 6 (17.14%) developing postoperative infections. Hematoma formation was observed in 2 patients (5.71%) in Group B. The p-values associated with bladder injury (p=0.001), blood loss (p<0.001), re-laparotomy (p=0.006), and postoperative infection (p=0.302) are presented. These findings underscore the variations in post-operative outcomes, with statistically significant differences in certain complications, highlighting the need for tailored approaches to address complications associated with morbid adherent placentas in different patient cohorts.

Table 2: Post-operative complications among both groups (n=50)

Complications	Group A N=15 (%)	Group B N=35 (%)	p-value
Bladder injury	4 (16.0%)	11 (31.43%)	0.001
Blood loss > 2000 ml	6 (24.00%)	14 (40.00%)	
Re-laparotomy	2 (8.0%)	13 (37.14%)	
Postoperative Infection	3 (12.0%)	6 (17.14%)	
Hematoma formation	0 (0.0%)	2 (5.71%)	

Discussion

Significant maternal morbidity and death are linked to morbidly adherent placentas, which continues to be a problematic obstetric condition. By comparing myometrial resection and caesarean section hysterectomy, this study sought to advance our knowledge of the best surgical techniques.[10] The findings provided important information for clinical decision-making by illuminating a number of topics, such as patient demographics, intraoperative specifics, and postoperative results.

The study population's baseline features showed that the cohort was varied, spanning a variety of ages, parities, and cesarean sections prior. Due to their similarity, the two groups—myometrial resection and caesarean section hysterectomy—minimized the possibility of patient demographic confounding variables.[11] A balanced comparison was ensured by the similarity of the groups' gestational ages at the time of diagnosis and the extent of placental invasion.

The variable character of morbidly adherent placenta instances is in line with this variability. Notably, the percentage of cases with deeper placental invasion was somewhat greater in the myometrial resection group. Preoperative counseling and surgical planning may be affected by this discovery, which highlights the necessity for customized strategies depending on the degree of placental invasion that determine the safety and effectiveness of surgical interventions are the intraoperative results, such as blood loss and complications. Table 2 shows that, when compared to caesarean section hysterectomy, myometrial resection was linked to similar intraoperative blood loss and morbidity.[12] This indicates that, even though it is a less common procedure, myometrial excision can effectively establish hemostasis and resolve the problems caused by placental invasion.

Both surgical techniques may require comparable levels of supportive measures, as the study observed no significant difference in blood transfusions between the two groups. It is necessary to conduct additional research on the factors determining the requirement for blood transfusions, as this is a crucial factor in the care of a morbidly adherent placenta.[13]

The groups' postoperative infection rates were similar, indicating that there was no clear benefit or drawback in terms of infectious complications between myometrial resection and caesarean section hysterectomy. In light of the significance of reducing postoperative infections in obstetric procedures, this discovery is comforting.[14]

The duration of hospital stay, which serves as a proxy for postoperative recuperation and resource consumption, was comparable among the cohorts. Compared to the more common caesarean section hysterectomy, this implies that although myometrial excision is a more uterine-preserving technique, it does not impact the overall recovery schedule.[15]

The prevalence of pelvic floor dysfunction, a crucial factor in maternal health, was similar in all groups. This is encouraging since it shows that, in contrast to caesarean section hysterectomy, myometrial excision does not seem to raise the risk of pelvic floor dysfunction even when it involves uterine preservation.

Myometrial excision and caesarean section hysterectomy yielded similar results in this study, which begs interesting issues regarding the possible advantages of a uterine-preserving strategy in certain situations of morbidly attached placenta. Myometrial resection is emerging as a viable alternative, particularly for women hoping to become pregnant in the future, even if caesarean section hysterectomy is still the gold standard for reducing bleeding and preventing maternal death.[16-17]

More research into patient-centered factors and long-term fertility results is warranted given the lack of substantial differences in intraoperative and postoperative outcomes between the two groups. Subgroup studies that take into account factors including gestational age, placental invasion depth, and prior obstetric history can reveal subtleties that affect the surgical method selected and the results that follow.[18-19]

Limitations and the Need for Further Research

Recognizing the limitations of this research, such as its retrospective design and potential observational biases, emphasizes the need for further prospective studies with larger sample sizes and extended follow-up periods. To confirm and provide a more comprehensive understanding of the relative efficacy of myometrial resection and cesarean section hysterectomy, it is essential to conduct additional research with these considerations in mind.

Conclusion

The analysis of 50 patients (Group A cesarean hysterectomy: n=15, Group B myometrial excision: n=35) reveals demographic and surgical distinctions, emphasizing the need for nuanced post-operative management strategies. Group A, comprising younger individuals, showed higher incidences of bladder injury and substantial blood loss (>2000 ml). Despite other complications being more prevalent in Group A, statistical significance varied. The study compares myometrial excision and cesarean section hysterectomy for morbidly adherent placenta, demonstrating comparable outcomes in blood loss, complications, transfusion needs, infection rates, and pelvic floor dysfunction. Myometrial resection emerges as a promising alternative for preserving the uterus and reducing bleeding in future pregnancies. Acknowledging study limitations, the research advocates for comprehensive prospective investigations, supporting a personalized, nuanced approach to surgical therapy based on patient preferences and clinical conditions, contributing to advancements in obstetric surgery.

References

1. Clausen C, Lönn L, Langhoff-Roos J. Management of placenta percreta: a review of published cases. Acta obstetricia et gynecologica Scandinavica. 2014 Feb;93(2):138-43.
2. Palacios-Jaraquemada, JM. Caesarean section in cases of placenta praevia and accreta. Best Pract Res Clin Obstet Gynaecol. 2013; 27: 221– 32.
3. Palacios, Jaraquemada JM, Pesaresi, M, Nassif, JC, Hermosid, S. Anterior placenta percreta: surgical approach, hemostasis and uterine repair. Acta Obstet Gynecol Scand. 2004; 83: 738– 44.
4. Clausen, C, Stensballe, J, Albrechtsen, CK, Hansen, MA, Lonn, L, Langhoff-Roos, J. Balloon occlusion of the internal iliac arteries in the multidisciplinary management of placenta percreta. Acta Obstet Gynecol Scand. 2013; 92: 386– 91
5. Uysal G, OKÇU NT, Eskimez E, YILMAZ ES. Local resection for placenta accreta spectrum: a conservative uterus sparing technique for anterior placenta accreta. The European Research Journal. 2018;5(1):50-
6. Mahalingam HV, Rangasami R, Premkumar J, Chandrasekar A. Placenta accreta scoring system (PASS) assessment of a simplified clinico-radiological scoring system for antenatal diagnosis of placenta accreta. Egyptian Journal of Radiology and Nuclear Medicine. 2021 Dec;52(1):1-6
7. Silver RM, Fox KA, Barton JR, Abuhamad AZ, Simhan H, Huls CK, et al. Center of excellence for placenta accreta.Am J Obstet Gynecol 2015;212:561-8
8. Kutuk MS, Ak M, Ozgun MT. Leaving the placenta in situ versus conservative and radical surgery in the treatment of placenta accreta spectrum disorders. International Journal of Gynecology & Obstetrics. 2018 Mar;140(3):338-44
9. Pegu B, Thiagaraju C, Nayak D, Subbaiah M. Placenta accreta spectrum-a catastrophic situation in obstetrics. Obstetrics & Gynecology Science. 2021 Mar 24;64(3):239-47

10. Likis FE, Sathe NA, Morgans AK, Hartmann KE, Young JL, Carlson-Bremer D, Schorn M, Surawicz T, Andrews J. Management of postpartum hemorrhage.2015 Apr
11. Karaman E, Kolusarı A, Çetin O, Çim N, Alkış İ, Yıldızhan R, Şahin HG, Gül A. Local resection may be a strong alternative to cesarean hysterectomy in conservative surgical management of placenta percreta: experiences from a tertiary hospital. The Journal of Maternal-Fetal & Neonatal Medicine. 2017 Apr 18;30(8):947-52.
12. Palacios Jaraquemada JM, Garcia Monaco R, Barbosa NE, Ferle L, Iriarte H, Conesa HA. Lower uterine blood supply: extrauterineanastomotic system and its application in the surgical devascularization techniques. Acta Obstet Gynecol Scand 2007; 86:228- 34.
13. Vichinsky, E. P., Haberkern, C. M., Neumayr, L., Earles, A. N., Black, D., Koshy, M., ... & Preoperative Transfusion in Sickle Cell Disease Study Group. (1995). A comparison of conservative and aggressive transfusion regimens in the perioperative management of sickle cell disease. New England Journal of Medicine, 333(4), 206-214.
14. Chandraharan E, Rao S, Belli AM, Arulkumaran S. The TripleP procedure as a conservative surgical alternative to peripartum hysterectomy for placenta percreta. Int J Gynaecol Obstet 2012; 117:191- 4.
15. Shabana A, Fawzy M, Refaie W. Conservative management of placenta percreta: A stepwise approach. Arch Gynecol Obstet 2015;291:993-8.
16. Doumouchtsis SK, Papageorghiou AT, Arulkumaran S. Systematic review of conservative management of postpartum hemorrhage: what to do when medical treatment fails. Obstetrical & gynecological survey. 2007;1;62(8):540-7.
17. Puntambekar, S., Gallinat, A., & Stark, M. Hysterectomy: Current Methods and Alternatives.
18. Rathert, Cheryl, Mary D. Wyrwich, and Suzanne Austin Boren. Patient-centered care and outcomes: a systematic review of the literature. Medical Care Research and Review. 2013; 70(4): 351-379.
19. Nair SS, Radhamany K, Nayar J. Morbidly Adherent Placenta: A 7-year experience. Annals of Woman and Child Health. 2016; 2(2):A15-21.