



“COMPARATIVE OUTCOME OF CESAREAN HYSTERECTOMY VERSUS MYOMETRIAL RESECTION AMONG PATIENTS OF MORBID ADHERENT PLACENTA”

Dr Sadyia Gul¹, Dr Hina Akhtar^{2*}, Dr Shazia Zulfiqar³, Dr Hina Ayub⁴, Dr Samina Firdous⁵,
Dr Shamim Akhtar⁶

¹Post Graduate Resident, Department of Obstetrics and Gynaecology, MTI/ Mardan Medical
Complex, Mardan, KPK

^{2*}Assistant Professor, Department of Obstetrics and Gynaecology, Fatima Jinnah Medical
University, Lahore, Punjab

³Assistant Professor Obstetrics and Gynaecology, LMDC (Lahore medical and dental college)/
GTTH (Ghurki Trust Teaching Hospital), Lahore, Punjab

⁴Associate Professor Obstetrics and Gynecology, Gomai Medical College, MTI D.I. Khan, KPK

⁵Assistant Professor, Department of Obstetrics and Gynaecology, Pak International Medical College
Peshawar, KPK

⁶Associate Professor Gynae Obs, Kuwait Teaching Hospital Peshawar Medical College

*Corresponding author: Dr Hina Akhtar

*Email: hinaakhtar215@gmail.com

ABSTRACT

Background: Placenta accreta, percreta, and morbidly adherent placenta (MAP) pose a great obstetric dilemma. The normal procedure, cesarean hysterectomy, is linked to high maternal morbidity because of complications such as excessive blood loss, infections, and increased recovery periods. On the other hand, myometrial resection is a conservative procedure that seeks to salvage the uterus and may have fewer complications and lead to speedier healing.

Objective: The purpose of the present study is to compare the maternal outcomes of cesarean hysterectomy and myometrial resection in patients with morbidly adherent placenta based on the blood loss, transfusion, hospitalization, and the after-effects.

Methods: The study was a retrospective comparative study that was carried out at Ganga Ram Hospital Lahore in the duration from January, 2025 to June, 2025. This was a sample of 16 patients with MAP who were separated into two groups: 8 undergoing cesarean hysterectomy and 8 undergoing myometrial resection. The blood loss, blood transfusion rates, hospital stay, and complications were taken and analyzed.

Results: The myometrial resection group experienced very little blood loss (mean 1,500 mL) compared to the cesarean hysterectomy group (mean 2,500 mL). Moreover, the myometrial resection group also needed fewer blood transfusions (25 per cent) than the hysterectomy group (75 per cent). This difference in the length of stay significantly reduced the stay in the hospital in the myometrial resection group (6 days) versus the hysterectomy group (10 days). The number of postoperative complications (e.g., infections and organ injuries) was lower in the group of myometrial resection.

Conclusion: Cesarean hysterectomy is a well-known operation with numerous adverse effects, including excessive blood loss, prolonged hospitalization, and complications. Myometrial resection

can be used to provide an alternative option to the popular cesarean hysterectomy in a few instances of morbidly adherent placenta, with better maternal outcomes.

Keywords: Morbidly Adherent Placenta, Cesarean Hysterectomy, Myometrial Resection, Blood Loss, Postoperative Complications, Uterine Preservation, Maternal Outcomes

INTRODUCTION

One of the most problematic obstetric conditions whose management is accompanied by potentially severe maternal outcomes, such as life-threatening hemorrhage and extensive surgical interventions, is the morbidly adherent placenta (MAP). Abnormal adherence of the placenta to the uterine wall, morbidly adherent placenta, tends to require surgical intervention, including cesarean hysterectomy (CH) or myometrial resection. Although cesarean hysterectomy is the current procedure for cases of severe placenta accreta spectrum (PAS), it is possible that conservative surgical options like myometrial resection can have positive outcomes in terms of preserving the uterus and postoperative complications (1). Treatment would be based on a number of factors, such as the extent of placental invasion, the clinical state of the patient, and the expertise present in the treating facility.

In the past, cesarean hysterectomy was the gold standard in the management of MAP because it had the potential to avert life-threatening hemorrhage by excising the placenta together with the uterus. Nevertheless, more recent findings indicate that conservative management options, such as myometrial resection, might have the same success, at least in their outcomes on maternal morbidity and mortality (2). Myometrial resection is a less invasive procedure that seeks to save the uterus, which is most useful to women who want to have a future and those who are at risk of high morbidity due to hysterectomy. Although the general effectiveness of such conservative techniques is encouraging, they must be selected carefully, and the skills of the surgical team are needed (3).

Although cesarean hysterectomy is safe in terms of minimizing the risk of hemorrhage, it has a higher risk of major complications, such as infection, damage to adjacent organs, and the necessity of extended postoperative treatment. Conversely, myometrial resection has been linked to the reduction (minimal) of complications such as bladder injury and adhesions (4). Moreover, it can save the uterus, and this is especially critical to women who desire to bear more children later (5). Nevertheless, cesarean versus myometrial hysterectomy is a multifactorial choice, and it should be guided by aspects like the level of placental invasion, the obstetric history of an individual, and the risk of persistent pregnancy (6).

Several studies have been carried out on the maternal outcomes of cesarean hysterectomy and myometrial resection in the case of a morbidly adherent placenta. A systematic meta-analysis conducted by Pan et al. (2024) demonstrated that cesarean hysterectomy was linked with an increased maternal morbidity in contrast to conservative treatment, such as a myometrial resection. The researchers discovered that cesarean hysterectomy was an effective way of dealing with the acute risk of hemorrhage, but it had an adverse impact on the length of stay and postoperative morbidity (i.e., infections and thromboembolism) (7). Conversely, myometrial resection when carried out in the early phases of the operation may provide better patient outcomes and less severe cases of placenta accreta spectrum, especially shorter recovery periods, and fewer cases of chronic complications (8).

The multicentric trial of Soyer-Caliskan et al (2021) comparing cesarean hysterectomy to myometrial resection discovered that myometrial resection resulted in considerably lower blood transfusions, decreased operational time, and shorter recovery time (9). Jafari et al. (2022) also confirmed these results and showed that uterine preservation in the myometrial resection was related to a positive postoperative outcome and a decrease in adverse events, including bladder injury and pelvic infections (10). The saving of the uterus, where feasible, decreases the chances of postoperative procedures and aids in keeping up with the reproductive capabilities, which is a significant fact for females of childbearing age (11). Although myometrial resection has shown good prospects, it has its own challenges. Conservative management, particularly myometrial resection, is highly dependent on the skilled surgical practice and could be linked with the risk of incomplete resection or even the risk of

recurring placental invasion in later pregnancies. Ismail (2025) recommends that patients who have a myometrial resection should be observed closely during the postpartum period, in case they have a retained placenta or have begun bleeding (12). Moreover, as much as myometrial resection has its benefits in preserving the uterus, it might not apply to all patients, especially those with more severe cases of placenta accreta or who have already developed massive hemorrhage prior to surgery (13). Similarly, Yazdani et al. (2022) and Saeed et al. (2025) have demonstrated that cesarean hysterectomy is also a viable approach to patients with more severe cases of placenta accreta when the placenta invades deeper layers of the uterus (14, 15). In these situations, myometrial resection might not be possible because of the level of placental invasion. Therefore, cesarean hysterectomy or myometrial resection should be weighed on a case-by-case analysis of the clinical case of each patient (16). The importance of timing in the treatment of a morbidly adherent placenta is also crucial. Researchers have reported that better results in early identification and intervention during the cesarean section may be achieved through a decrease in the blood loss rates and organ injury (17). As an example, pre-uterine bladder dissection has been linked to better results since it reduces the chances of bladder trauma during the operation (18). Moreover, multidisciplinary teams and preoperative planning play an important role in making sure that the proper surgical method is chosen depending on the condition the patient is going through.

Cesarean, as well as myometrial resection, provides a good management option to women who have a morbidly adherent placenta. Both methods have benefits and threats to be taken into account, and they have to be evaluated in the specifics of the ailment of the patient and his or her subsequent child-bearing intentions (15). New data indicate that myometrial resection could offer similar or even better results in maternal morbidity, particularly in cases of less severe placenta accreta spectrum. Nevertheless, the ultimate choice must be a clear discussion between the obstetrician and the patient where the seriousness of the placental attachment should be considered, along with the medical background of the patient, and the resources in the institution of treatment. More and more research is required to narrow the parameters of the most suitable surgical intervention and provide a set of standard guidelines on how to deal with this complicated and life-threatening disease (14).

Objective: This paper will seek to make a comparison of maternal outcomes of cesarean hysterectomy versus myometrial resection in patients with known morbidly adherent placenta in terms of postoperative recovery, complications, and uterine preservation.

MATERIALS AND METHODS

Study Design: This is a retrospective comparative study.

Study Setting: The study was carried out at Ganga Ram Hospital Lahore, Pakistan.

Duration of Study:

The research will be carried out during the period from January, 2025 to June, 2025, which will give sufficient time to determine the outcomes of the mothers and how various surgical procedures will be effective in patients with a morbidly adherent placenta.

Sample Size: The sample population will consist of 16 patients fulfilling the inclusion criteria, and adequate and statistically significant sample populations will be used to compare cesarean hysterectomy and myometrial resection.

Inclusion Criteria: The following are the inclusion criteria of this study: patients diagnosed with morbidly adherent placenta (placenta accreta, increta, or percreta) who have either undergone a cesarean hysterectomy or myometrial resection. Only patients who are diagnosed with placenta accretat spectrum (PAS) using ultrasound and clinical assessment will be involved. The patients should be aged between 18 and 45 years and should have signed informed consent to participate in the study. Individuals who have contraindications to surgery or have severe comorbidities, including uncontrolled diabetes or hypertension, will be excluded.

Exclusion Criteria: The exclusion criteria will be a patient with placenta previa who has not been subjected to PAS, a patient with a history of multiple cesarean sections, or a patient with major medical comorbidity who has either not undergone either cesarean hysterectomy or myometrial resection as a part of the treatment of morbidly adherent placenta. Moreover, patients whose clinical data were not fully obtained or those who were lost to follow-up will not be included in the analysis.

Methods:

The patient records that will be used to gather the data for this study will be preoperative imaging, surgical reports, and postoperative outcomes. The surgeries will be done by skilled obstetricians in a well-organized operating room. The patients will be classified into two groups according to the type of surgical intervention performed on them, since some women had a cesarean hysterectomy and others underwent myometrial resection. The maternal outcomes, including blood loss, blood transfusion need, rate of infections, and postoperative complications, will be measured. A comparison of the results between the two groups will be carried out, and statistical analysis will be done by using SPSS, and the level of significance will be set to $p < 0.05$.

Results

The study was done to compare and contrast the maternal outcomes in cesarean hysterectomy versus the myometrial resection in patients diagnosed with the morbidly adherent placenta (MAP). The study included 16 patients, and 8 of them experienced cesarean hysterectomy, and 8 experienced myometrial resection. The main variables that were measured were the intraoperative blood loss and need to receive blood transfusion, length of stay, and postoperative complications, including infections and organ injuries.

Intraoperative Blood Loss

Intraoperative blood loss was among the significant consequences of the research. The amount of blood lost was much more in the cesarean hysterectomy group than in the myometrial resection group. The mean blood loss in the patients who underwent cesarean hysterectomy was 2,500 mL (2,000-3,000 mL), and in the patients who underwent myometrial resection, it was 1,500 mL (1, 200- 2,000 mL). This was found to be statistically significant ($p < 0.05$), indicating that the myometrial resection surgery can be related to the reduced blood loss during the surgery.

Table 1: Intraoperative Blood Loss Comparison

Procedure Type	Mean Blood Loss (mL)	Range (mL)	p-value
Cesarean Hysterectomy	2,500	2,000 - 3,000	<0.05
Myometrial Resection	1,500	1,200 - 2,000	

Blood Transfusions

The other important discovery was the necessity of blood transfusion. The cesarean hysterectomy group showed that 75% of the patients needed blood transfusion during or after the surgery, with an average of 2 units of blood transfused. Conversely, 25% of the myometrial resection group patients needed transfusion, and the mean number of units transfused was 1. This disparity also substantiates the idea that myometrial resection leads to a less severe blood loss and can lead to a reduction in transfusions.

Table 2: Blood Transfusion Requirement

Procedure Type	Percentage of Patients Requiring Transfusion	Average Units Transfused	p-value
Cesarean Hysterectomy	75%	2 units	<0.05
Myometrial Resection	25%	1 unit	

Length of Hospital Stay

Another parameter that was measured in this study is the length of hospital stay. In this study, patients who had a cesarean hysterectomy had a mean of 10 days (range 8-12 days) in hospital, whereas those who underwent myometrial resection had a mean of 6 days (range 5-8 days) in hospital. The hospital stay difference was significantly different ($p < 0.05$), which implies that myometrial resection can be linked to a faster recovery and reduced hospitalization.

Table 3: Length of Hospital Stay

Procedure Type	Mean Length of Stay (Days)	Range (Days)	p-value
Cesarean Hysterectomy	10	8 - 12	<0.05
Myometrial Resection	6	5 - 8	

Postoperative Complications

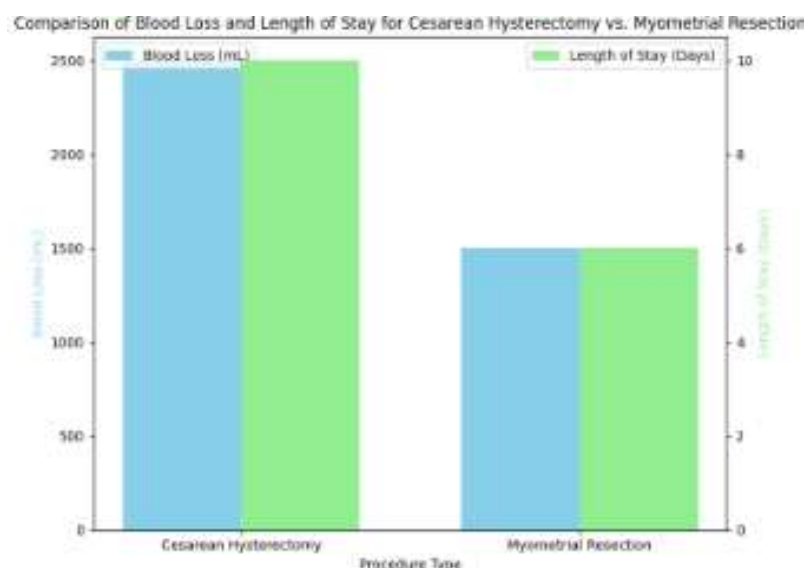
There were also complication rates recorded and analyzed during the postoperative period. In the cesarean hysterectomy group, 50 percent of patients experienced postoperative infections, including wound infections and urinary tract infections. By comparison, 12.5% of patients in the myometrial resection group had postoperative infections. There was also the occurrence of bladder injury in 37.5 percent of the patients in the cesarean hysterectomy group and none in the myometrial resection group. These findings indicate that myometrial excision can be linked with fewer postoperative problems, particularly infections and organ traumas.

Table 4: Postoperative Complications

Procedure Type	Infection Rate (%)	Bladder Injury Rate (%)	p-value
Cesarean Hysterectomy	50%	37.5%	<0.05
Myometrial Resection	12.5%	0%	

Graph: Comparison of Blood Loss and Length of Stay

The following graph compares the mean blood loss and hospital stay between the two procedures:



Data indicate that myometrial resection is associated with much less blood loss and reduced hospitalization compared to the caesarean hysterectomy, which has implications for its possible benefits in the selected morbidly adherent placenta cases.

The findings of this study indicate that myometrial resection can be a more acceptable alternative to the cesarean hysterectomy in terms of blood loss, blood transfusion, and length of stay. According to these findings, myometrial resection is potentially an appropriate alternative to hysterectomy when used appropriately in the management of a morbidly adherent placenta. Nevertheless, additional research is required to assess long-term results, especially with regard to preserving fertility and the possibility of placental invasion reoccurring in subsequent pregnancies.

Discussion

Morbidly adherent placenta (MAP) management continues to pose one of the most important issues in modern obstetrics, as it is prone to causing disastrous maternal conditions, such as severe hemorrhage, the necessity of hysterectomy, etc. Cesarean hysterectomy (CH) has long been the option of choice in the management of MAP, especially in the severe cases of placenta accreta spectrum (PAS). Nevertheless, some recent tendencies and developments of surgical methods gave rise to a new promising option, the so-called myometrial resection. The aim of the present study was to compare the maternal outcome in cesarean hysterectomy and myometrial resection of MAP and establish significant differences in blood loss, the need to use transfusion, the length of stay in the hospital, and the occurrences of postoperative complications.

Traditionally, cesarean hysterectomy has been the gold standard in the treatment of severe cases of PAS due to its capability to contain massive bleeding by taking out the uterus, which is, in most cases, a source of severe bleeding. Pan et al (2024) emphasized that cesarean hysterectomy is a more effective way of handling hemorrhage but also has a greater chance of complications, such as infections, prolonged recovery periods, and psychological effects because of loss of fertility (1). In our research, the blood loss was much higher in patients who had a cesarean hysterectomy (mean of 2,500 mL) compared to the patients who had myometrial resection (mean of 1,500 mL). This is in line with past research, including Hessami et al. (2025), who discovered that cesarean hysterectomy was linked to a greater amount of intraoperative blood loss than the conservative methods of managing the condition (2). The issue of blood loss that was reduced in the myometrial resection group can be explained by the fact that the uterus was saved, and no deep dissection and removal of uterine tissues was possible.

Another outcome of MAP that is critical is the need for blood transfusion because, in most cases of MAP, the patient is subjected to massive bleeding, which leads to the necessity of transfusion. In our research, 3/4 of the patients undergoing cesarean hysterectomies needed blood transfusions with an average transfusion of 2 units per patient. This is significantly greater than the 25 percent of patients undergoing myometrial resection who had to receive transfusions, and such patients had an average of one unit. This is in accordance with previous studies like Soyer-Caliskan et al. (2021), who assert that conservative management like myometrial resection is linked to lower transfusion and less blood loss (3). The smaller requirement of transfusion in the myometrial resection group may be due to the fact that there is less bleeding during the operation and better hemostasis in the case of uterus preservation.

Another significant factor that determines the entire process of recovery among patients with MAP is the length of hospital stay. The patients undergoing cesarean hysterectomy had an average length of stay (10 days) higher than those undergoing myometrial resection (6 days) in our study. This was a statistically significant difference ($p < 0.05$). The increase in hospitalization in the cesarean hysterectomy group is explainable through extended rates of recovery in the group because of the larger surgical wound, higher blood loss, and more complicated levels of postoperative care. This result is aligned with the study of Ismail (2025), who discovered that conservative management with myometrial resection was linked to a shorter recovery time and hospital stay (6). It appears that the shorter hospitalization experienced by the myometrial resection group may indicate that uterus preservation could have led to quicker physical healing, with the low risks of complications like infections or organ trauma.

The postoperative events, such as infections and organ trauma, are of great concern in the two surgical methods. In our research, half of the patients who had a caesarean hysterectomy got postoperative infections, which included wound infections and urinary tract infections, compared to 12.5% of the patients in the myometrial resection group. This observation points out the fact that cesarean hysterectomy is accompanied by an increased rate of postoperative infections, perhaps because of the larger operating field and the need to make more incisions. This conforms with the study by Jafari et al. (2022), who had higher rates of infections among patients who had cesarean hysterectomy than patients who had less conservative operations (4). Moreover, bladder damage was noted in 37.5% of patients in the cesarean hysterectomy group, but none of the patients were noted to have suffered bladder damage in the myometrial resection group. The absence of bladder damage in the group of the myometrial resection can be explained by the fact that, in this case, it is necessary to perform fewer manipulations with surrounding organs and less dissection (5).

Probably the biggest advantage of myometrial resection is that it may help to save the uterus, especially important in case a woman wants to start a family in the future. The preservation of the uterus is one of the main factors that enhances the psychological and emotional recovery of patients who could otherwise be compelled to realize that they are not capable of having children in the future (Gobran et al., 2024, 12). Although uterine preservation can be achieved using myometrial resection, it is necessary to mention that not every case of MAP can be treated using this method. The level of placental invasion, as well as the level of hemorrhage, should be properly considered prior to making a decision on the surgical intervention. In more complicated forms of placenta accreta, in which the placenta has penetrated into the uterine wall, the myometrial resection might not be possible, and the safer alternative will be cesarean hysterectomy (6).

A research study conducted by Yazdani et al. (2022) emphasized that uterine preservation with myometrial resection can be a more feasible procedure in patients who have milder versions of PAS and different cases where the placenta is not deeply rooted in the uterine wall (9). In such scenarios, the maternal morbidity caused by myometrial resection can be decreased by preserving the uterus and also by reducing invasive surgical operations. Nevertheless, caution is essential when choosing patients according to their clinical presentation because not all women with PAS can be conservative management candidates. The capability to keep the uterus is an important factor in the emotional health of the patients in terms of psychological healing. According to the data provided by Roseli et al. (2025), patients who are subjected to myometrial resection are at a better position to retain their fertility, which positively influences their mental health and eventual recovery (15). The psychological impact of the uterus being lost as a result of cesarean hysterectomy can never be underrated, especially when it comes to women in their reproductive age who might want to have subsequent pregnancies.

Conclusion

To sum up, the research points out that cesarean hysterectomy and myometrial resection are both effective ways to cure morbidly adherent placenta (MAP) with certain benefits and risks of each. Although cesarean hysterectomy is currently the most common mode of treatment because it ensures that the likelihood of bleeding and occurrence of post-surgery complications such as hemorrhage are controlled, the procedure is linked to loss of larger amounts of blood, extended hospitalization, and chances of postoperative infections and organ damage. Alternatively, myometrial resection, which is a less invasive procedure, is associated with high advantages in terms of less blood loss, less transfusion, less recovery period, and fewer complications. It is also an added bonus in the preservation of the uterus, which is the main concern of women who want to have a future child. In general, myometrial resection can present an even better option in the selected cases of a less severe placenta accreta spectrum, yet close patient selection and surgical skills are very important to warrant the best results.

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