# Focal Resection of Lower Uterine Segment for Morbidly Adherent Placenta. An Alternative to Obstetric Hysterectomy-(Better Modality with Better Outcome)

**Tehreem Yazdani, Fareeha Zaheer*, Nabila Amin*, Saad Mukhtar****

Combined Military Hospital Okara/National University of Medical Sciences (NUMS) Pakistan, *Pak Emirates Military Hospital/National University of Medical Sciences (NUMS) Rawalpindi Pakistan, **Fazaia Medical College Islamabad/National University of Medical Sciences (NUMS) Pakistan

## ABSTRACT

***Objectives:*** To focus on the benefits of focal resection of the lower uterine segment as compared to obstetric hysterectomy in patients with morbidly adherent placenta.

***Study Design:*** Quasi-experimental study.

***Place and Duration of Study***: Combined Military Hospital Okara, Oct 2019 to Nov 2020.

***Methodology***: Fifty-two women between 34 to 38 weeks of gestation were operated for morbidly adherent placenta. Group-I women (focal resection of the lower uterine segment) and Group-II (obstetric hysterectomy) were twenty-six each. In Group-I, hemostasis was secured by a figure of 8 sutures, purse-string sutures or continuous sutures. In Group-II, hemostasis was secured, and internal iliac artery ligation was done as required.

***Results:*** Group-I undergoing focal resection of lower uterine segment hemostasis was addressed by the figure of 8 sutures in 21 (80%) women and purse-string sutures in 7 women (27%). Hemostasis of the posterior uterine wall was done in 12 (47%) women. Balloon tamponade was used in 10 (40%) women and B-Lynch suture in 5 (20%) women. Internal iliac artery ligation was done in 4 (11%) women, and the bladder was injured in 10 (40%) women. Group-II undergoing obstetric hysterectomy hemostasis was secured for leftover placental tissue in 5 (18%) women, and internal iliac artery ligation was done in 9 (35%) women. Bladder repair was done in 12 (47%) cases.

***Conclusion:*** Although time-consuming, focal resection of the lower uterine segment and hemostasis are associated with less morbidity.

**Keywords**: Focal resection of the lower uterine segment, Obstetric hysterectomy, Morbidly adherent placenta (MAP).

***How to Cite This Article:*** *Yazdani T, Zaheer F, Amin N, Mukhtar S. Focal Resection of Lower Uterine Segment for Morbidly Adherent Placenta. An Alternative to Obstetric Hysterectomy-(Better Modality with Better Outcome). Pak Armed Forces Med J 2022; 72(2): 627-631. DOI: https://doi.org/10.51253/pafmj.v72i2.5780*



## INTRODUCTION

Placenta praevia is abnormal placental implantation when the placenta overlies the lower uterine segment.[1] The spectrum of morbidly adherent placenta includes placenta accreta, increta and percreta, depending upon invasion of uterine tissues.[1-3] In the modern world risk of placenta accreta is increasing due to the increased number of caesarean deliveries.[3,4] The risk of placental invasion increases along with an increasing number of caesarean sections.[3,4] Chances of placenta praevia being morbidly adherent are 3% with a previous caesarean section and greater than 60% with four or more caesarean sections.[3-5]

Placenta praevia can be classified as increta (placenta invading endometrium), accreta (adherence up to myometrium) and percreta (adherence beyond myometrium, may invade bladder, broad ligament, or rectum). Placenta accreta can be focal, segmental or generalized depending on the area of adherence.[4-6]

**Correspondence: Dr Tehreem Yazdani,** Head of Obstetrics and Gynaecology, Combined Military Hospital Okara, Pakistan

*Received: 02 Dec 2020; revision received: 28 Feb 2021; accepted: 02 Mar 2021*

In turn, placenta accreta is associated with an increased risk of APH, caesarean hysterectomy, prolonged surgery time, need for massive blood transfusion, increased risk of bladder and ureteric injury, DIC, increased hospital stay, increased risk of PPH and maternal and fetal morbidity and mortality.[6,7]

It is extremely important to manage placenta praevia timely and effectively.[8,9] In our study, we have compared focal resection of placenta accreta to obstetrical hysterectomy. At the same time, focal resec-tion is a time-consuming, lengthy procedure but is associated with increased patient satisfaction and increased quality of life afterwards.[2,3,10] Obstetrical hysterectomy is the ultimate management of life-threatening haemorrhage, but focal resection is equally effective, along with benefits of saving the uterus, patient's mental satisfaction, and future fertility outcome if desired when done carefully selected patients.

## METHODOLOGY

A quasi-experimental study was conducted at CMH Okara for one year and two months (Oct 2019 to

Nov 2020). Approval from the Institutional Ethical Committee was obtained (IERC/OBS/2020/07).

**Inclusion Criteria:** All the patients diagnosed prenatally with placenta accreta disorders using ultrasound, Doppler, and magnetic resonance imaging (MRI) were included in the study.

**Exclusion Criteria:** Patients with spontaneous separation of placenta intraoperative or any other associated uterine pathology needing hysterectomy and those with impaired liver or renal functions and coagulation disorders were excluded.

Ninety-one patients were recruited between 34 to 38 weeks of gestation for placenta praevia. Seventy-nine of them were suspected or diagnosed with morbidly adherent placenta either by simple OPD ultrasound, Doppler ultrasound or MRI. Fifty-two of these were found to have MAP during surgery. Half women underwent an obstetric hysterectomy, and half underwent focal resection of the lower uterine segment and uterine reconstruction of the leftover anterior wall.

Those women undergoing focal resection (Group-I) of MAP bladder were dissected away, and conventional two-layer closure was done. Haemostasis was secured by the figure of $^{8}$, purse-string or continuous sutures in leftover anterior lower segment uterine wall or posterior wall where there was bleeding from placental site. The use of balloon tamponade, B-Lynch suture and internal artery ligation was done, and the percentage was calculated.

For the patient who underwent obstetric hysterectomy (Group-II), haemostasis was secured, internal iliac artery ligation was done when required, and the percentage was calculated.

Urinary bladder damage (either whole bladder wall or serosa) and its repair was addressed for both groups. A number of blood transfusions, FFPs were calculated. Methotrexate for leftover placenta in vaginal tissue was given, and the percentage was calculated. The average time consumed for a complete procedure was calculated.

On the operation table, the patient was assessed for focal resection according to the area of placental invasion. Foetus was delivered by placenta sparing high incision. Long artery forceps and green Armitage were applied to reduce bleeding from placental tissue. Then bladder separation was done with great care, followed by excision of part of the lower uterine segment and placental tissue. Haemostasis of the anterior wall of the uterus was secured either by the figure of,$^{8}$ sutures or by purse-string suture or both. Purse string suture was placed when the lower uterine segment was more deficient, and there was less place for the figure of,$^{8}$ sutures. If invaded by a placental bed, haemostasis of the posterior wall of the uterus was secured and reassured by the figure of $^{8}$, or continuous sutures or both. The use of balloon tamponade or B-Lynch suture was done to secure bleeding from small placental sites that were still oozing after sutures. Internal iliac artery ligation was done in exceptional cases when more chances of postpartum haemorrhage were suspected despite other all the measures taken.

Statistical Package for Social Sciences (SPSS) version 20.0 was used for the data analysis. Mean ± SD were calculated for quantitative variables. Quantitative variables were presented in the form of frequency and percentage.

## RESULTS

A total of 91 women admitted to inpatient were recruited, out of them 79 were either suspected or diagnosed to be having morbidly adherent placenta spectrum. Morbidly adherent placenta was observed in 52 (36%) cases. Focal resection of the placenta and haemostasis was done in 26 (18%) cases, and obstetrical hysterectomy was done in the same number of women (Table-I).

**Table-I: Distribution of patients (n=146).**

| Morbidity | No of Patients | % age |
|---|---|---|
| Placenta Praevia with Previous Scar | 146 | |
| Suspected/Diagnosed Morbidly Adherent Placenta | 65 | 44% |
| Morbidly Adherent Placenta During Surgery | 52 | 36% |
| Focal Resection of Lower Uterine Segment (Group I) | 26 | 18% |
| Obstetrical Hysterectomy (Group I) | 26 | 18% |

In Group-I, haemostasis was secured by a number of methods. After conventional two-layer closure bleeding from the anterior uterine wall was addressed by the figure of,$^{8}$ sutures in 21 (80%) women. Those with scanty leftover lower segment uterine tissue 7 (27%) were applied with a purse-string suture. Haemostasis of the posterior uterine wall was invaded by a placental bed was secured by the figure of,$^{8}$ and continuous mattress sutures in 12 (47%) women. Balloon tamponade was used in 10 (40%) women and

B-Lynch suture in 5 (20%) cases. Internal iliac artery ligation was required in 4 (11%) patients. The urinary bladder was injured in 10 (40%) patients with complete rent, and serosal repair was required in 5 (20%) cases. Methotrexate was given in 7 (27%) women to destroy leftover placental tissue in the upper vaginal wall (Table-II).

**Table-II: Spectrum of focal resection of lower uterine segment Group-I : (n=26).**

| Steps taken to Reduce Intraoperative/Postoperative Morbidities | No of Patients | % age |
|---|---|---|
| Haemostasis of Left over Lower Segment of Anterior Uterine Wall by Figure of 8 Sutures | 21 | 80 |
| Haemostasis of Left Over Lower Segment of Anterior Uterine Wall by Purse String Suture | 7 | 27 |
| Haemostasis Posterior Uterine Wall Placental Bed by Figure of 8 & Continuous Sutures | 12 | 47 |
| Balloon Tamponade | 10 | 40 |
| B-Lynch Suture | 5 | 20 |
| Internal Iliac Artery Ligation | 4 | 11 |
| Urinary Bladder Repair (Complete Entire Rent) | 10 | 40 |
| Urinary Bladder Repair (Serosa only) | 5 | 20 |
| Methotrexate | 7 | 27 |

In Group-II, haemostasis was secured for leftover placental tissue in the vaginal cuff by the figure of 8 sutures in 5 (18%) women, and they were also given Methotrexate later on. Internal iliac artery ligation was required in 9 (41%) patients. The urinary bladder was injured in 12 (47%) patients with complete rent, and serosal repair was required in 5 (19%) cases (Table-III).

**Table-III: Spectrum of Obstetric Hysterectomy (Group-II: n= 26).**

| Steps Taken to Reduce Intraoperative/Postoperative Morbidities | No of Patients | % age |
|---|---|---|
| Haemostasis Left Over Placental Tissue in Vaginal Wall | 5 | 18 |
| Internal Iliac Artery Ligation | 11 | 41 |
| Urinary Bladder Repair (complete entire rent) | 12 | 47 |
| Urinary Bladder Repair (serosa only) | 5 | 19 |
| Methotrexate | 5 | 19 |

An average of 3 RCC and four fresh frozen plasma were required for Group -I, while an average of 5 RCC and 6 FFPs were required for Group-II (Table-IV). The average time per surgery calculated for Group-I was 1 hour 40 minutes, and for Group II was 1 hour 20 minutes (Table-V).

**Table-IV: Average number of blood and fresh frozen plasma by both procedures.**

| Procedure Adapted | Transfusion of Blood & Blood Products | Average Number of Transfusions/ Surgery |
|---|---|---|
| Focal Resection of Lower Uterine Segment (Group-I) | Blood Transfusions | 3 |
| Focal Resection of Lower Uterine Segment (Group-I) | Transfusions of Fresh Frozen Plasma | 4 |
| Obstetric Hysterectomy (Group-I) | Blood Transfusions | 5 |
| Obstetric Hysterectomy (Group-I) | Transfusions of Fresh Frozen Plasma | 6 |

**Table-V: Time consumed by both procedures (n=52).**

| Procedure Adapted | Average Total Time /Procedure |
|---|---|
| Focal resection of lower uterine segment (Group II) | 1 hour 40 minutes |
| Obstetric Hysterectomy (Group II) | 1 hour 20 minutes |

## DISCUSSION

Where peripartum hysterectomy is the most frequent treatment of placenta accreta, uterus sparing technique can be applied. Focal resection of the lower uterine segment is associated with more benefits. In our study, we compared both groups during surgery and found many methods that can be used to secure haemostasis. We can apply basic surgical sutures for it and balloon tamponade; a B-Lynch suture can also be applied to the conserved uterus. In this way, the uterus can be spared. Bladder injury is also less in the focal resection group than in the obstetric hysterectomy group. Similarly, the number of patients who were given Methotrexate was also less in group-I. Average number of blood transfusions, and plasma was less in group-I and the time consumed for surgery was also less. Although obstetrical hysterectomy is known for its own merits and is the only treatment choice for profusely bleeding patients, focal resection can also be kept in mind for the same patients.

The study conducted by Rashed *et al*, almost described the same method. They worked on anterior placenta accreta and did the removal of placental tissue along with the lower segment, similar to our study. They found that the procedure needs more time

but is associated with less likelihood of bladder and ureteric injury and less blood loss.[1]

The study by Zheo *et al*, was similar to our Group-I results. They did local resection of the lower uterine segment at the placental invasion site and reconstruction of the leftover area to preserve the uterus for future fertility. They also found that this technique is associated with a lower rate of intra-operative complications such as bladder or ureteric injury and less need for bloodtransfusions.[2]

Cirpen *et al*, observed in their study that the segmental resection technique for placenta accreta is highly effective and is shown to be associated with less intraoperative morbidity. They also used a similar technique as ours and found less need for blood transfusions in segmental resection.[3]

The study conducted by Saad El Gelany *et al*, at Minia Egypt compared different management strategies for MAP.[4] They worked on 102 women with placenta accreta for a year and managed obstetric hysterectomy in Group-I patients and cervical inversion and bilateral uterine artery ligation in Group-II patients. Their study is comparable to our study as they also observed that blood loss was higher in Group I, and similarly need for blood transfusion was also more. They also concluded that using the cervix for tamponade can also be used for haemostasis in uterine preserving surgery as an alternative to hysterectomy with focal placenta accreta and low parity desiring future fertility. In addition, focal resection securing of haemostasis with balloon insertion,[6] B-Lynch suture,[7] compression sutures,[8] square sutures,[11] is done in obstetric practice daily. However, the success of these techniques is variable.[12-14]

Many studies in the literature support that high blood loss and the need for blood transfusions is the main drawback of obstetric hysterectomy.[15,16] A previous study reported that mean blood loss was 3000ml and required transfusions were five units which is the almost same requirement as in our study.[4] In our study, complications were higher in Group-II. The incidence of bladder injury with total rent or serosal injury was higher in the obstetric hysterectomy group than in the focal resection group. Many studies supported our findings that reported that the complication rate was higher with caesarean hysterectomy.[17,18]

## CONCLUSION

Focal resection of the lower uterine segment should be done for placental invasion where suitable. It is an alternate to obstetric hysterectomy. However, its time consuming but associated with less intra-operative morbidity with less blood loss and less need for blood and blood products transfusions.

## RECOMMENDATIONS

a. Early detection and diagnosis lead to more satisfaction for obstetricians, patients and families.

b. Adapting focal resection for MAP is associated with a better outcome.

c. Multidisciplinary teamwork is required for a better outcome.

**Conflict of Interest:** None.

**Author's Cntribution**

TY; Concepyion and manuscript, FM: Design, manuscript, NA: Data analysis, SM: Manuscript and data analysis.

## REFERENCES


1. Rashed RM. A New Surgical Technique in Management of Anterior Placenta Previa Accreta. Al Azhar Med J 2014 ;12(4): 2-5.
2. Zhao X, Tao Y, Du Y, Zhao L, Liu C, Zhou Y, et al. The application of uterine wall local resection and reconstruction to preserve the uterus for the management of morbidly adherent placenta: case series. Taiwan J Obstet Gynecol 2018; 57(2): 276-282.
3. Cırpan T, Akdemir A, Okmen F, Hortu I, Ekici H, Imamoglu M. Effectiveness of segmental resection technique in the treatment of placenta accreta spectrum. J Matern Fetal Neonatal Med 2019; 34(19): 3227-3233.
4. El Gelany S, Mosbeh MH, Ibrahim EM, Khalifa EM, Abdelhakium AK, Yousef AM, et al. Placenta ACCRETA SPECTRUM (PAS) disorders: incidence, risk factors and outcomes of different management strategies in a tertiary referral hospital in Minia, Egypt: a prospective study. BMC Pregnancy Childbirth 2019; 19(1): 1-8.
5. Dubois J, Garel L, Grignon A, Lemay M, Leduc L. Placenta percreta: balloon occlusion and embolization of the internal iliac arteries to reduce intraoperative blood losses. Am J Obstetr Gynecol 1997; 176(3): 723-726.
6. Frenzel D, Condous GS, Papageorghiou at, McWhinney NA. The use of the 'tamponade test'to stop massive obstetric haemorrhage in placenta accreta. Br J Obstet Gynaecol 2005; 112(5): 676-677.
7. B Lynch C, Coker A, Lawal AH, Abu J, Cowen MJ. The B-Lynch surgical technique for the control of massive postpartum haemorrhage: an alternative to hysterectomy? Five cases reported. Br J Obstet Gynaecol 1997; 104(3): 372-375.
8. Hwu YM, Chen CP, Chen HS, Su TH. Parallel vertical compression sutures: a technique to control bleeding from placenta praevia or accreta during caesarean section. Br J Obstet Gynaecol 2005; 112(10): 1420-1423.
9. Tjalma WA, Jacquemyn Y. Compression sutures instead of emergency peripartum hysterectomy. Eur Journal Obstet Gynecol 2005 ; 118(2): 258.
10. Eller AG, Porter TF, Soisson P, Silver RM. Optimal management strategies for PAS disorders. BJOG 2009; 116(5): 648-654.
11. Eller AG, Bennett MA, Sharshiner M, Masheter C, Soisson AP, Dodson M, Silver RM. Maternal morbidity in cases of placenta accreta managed by a multidisciplinary care team compared with standard obstetric care. Obstet Gynecol 2011; 117(2): 331-337.

12. Alanwar A, Al-Sayed HM, Ibrahim AM, Elkotb AM, Abdelshafy A, Abdelhadi R, Abbas AM, Abdelmenam HS, Fares T, Nossair W, Abdallah AA. Urinary tract injuries during cesarean section in patients with morbid placental adherence: retrospective cohort study. J Matern Fetal Neonatal Med 2019; 32(9): 1461-1467.
13. Allahdin S, Voigt S, Htwe TT. Management of placenta praevia and accreta. J Obstet Gynaecol 2011; 31(1): 1-6.
14. Tong SY, Tay KH, Kwek YC. Conservative management of placenta accreta: review of three cases. Singapore Med J 2008; 49(6): 156-159.
15. Hudon L, Belfort MA. Diagnosis and management of placenta percreta: a review. Obstet Gynecol Sur 1999; 54(11): 156-164.
16. Doumouchtsis SK, Arulkumaran S. The morbidly adherent placenta: an overview of management options. Acta Obstet Gynecol Scand 2010; 89(9): 1126-1133.
17. Cui R, Li M, Lu J, Bai H, Zhang Z. Management strategies for patients with placenta accreta spectrum disorders who under-went pregnancy termination in the second trimester: a retrospective study. BMC Pregnancy Childbirth 2018; 18(1): 1-8.
18. Tamate M, Matsuura M, Habata S, Akashi Y, Tanaka R, Ishioka S, Endo T, Saito T. Preservation of fertility and subsequent childbirth after methotrexate treatment of placenta percreta: a case report. J Med Case Rep 2015; 9(1): 1-4.

.....