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Efficacy (In Terms of Avoiding Hysterectomy) of the Triple P Procedure in Managing Morbidly Adherent Placenta

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ABSTRACT

Objective: To determine the efficacy (in terms of avoiding hysterectomy) of the Triple P procedure in managing morbidly adherent placenta.

Study Design: Case series.

Place and Duration of the Study: Department of Obstetrics & Gynaecology, Combined Military Hospital, Peshawar Pakistan, from Dec 2018 to Mar 2020.

Methodology: A total of 56 pregnant women of gestational age ≥32 weeks with the morbidly adherent placenta were included. Caesarean section was done in each patient by the consultant gynaecologist, and then the Triple P procedure was done. Efficacy in each patient was noted.

Results: The mean age of the study participants was 30.79±4.42 years. In our analysis, the mean parity was 3.05±0.88. The mean number of caesarean sections was 2.00±1.11. The Triple P procedure was effective (in avoiding hysterectomy) in managing morbidly adherent placentas in 53(94.64 %) participants.

Conclusion: This study concluded that the Triple P procedure's efficacy (in terms of avoiding hysterectomy) in managing morbidly adherent placenta is very high.

Keywords: Morbidly adherent placenta, Triple P procedure, Hysterectomy.

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INTRODUCTION

The spectrum of placenta accreta, increta, and percreta is termed morbidly adherent placenta (MAP), and it can cause significant perinatal morbidity and mortality.[1] Scarring occurs as a result of uterine surgery, which causes a deficient decidua, which leads to extensive penetration of trophoblastic tissue into and sometimes beyond the myometrium, leading to failure of separation of the placenta at the time of delivery.[2,3] Once a rare occurrence, the morbidly adhered placenta is currently becoming a more prevalent pregnancy problem, owing to the rise in caesarean deliveries over the last few decades.[4,5] It is the most common indication for obstetric hysterectomy. Preterm birth and small for gestational age fetuses significantly increase the risk of perinatal complications.[6] Sonography and MRI can help diagnose the placenta accreta spectrum. Conventional 2-dimensional ultrasonography is a good screening method for detecting morbidly adherent placenta.[7] For women with morbidly adherent placenta, the Triple P Procedure is a safe and successful alternative to obstetric hysterectomy. It leads to a lower risk of major obstetric haemorrhage (>2 litres of blood loss), blood transfusions, and Intensive care unit admission. Maternal morbidity is also reduced as there are fewer urinary tract injuries and less need for hysterectomy.[8,9]

As the morbidly adherent placenta is associated with adverse pregnancy outcomes, and most of them end in peripartum hysterectomy, this study was planned and carried out to evaluate the effectiveness (by avoiding hysterectomy) of Triple P procedure in managing morbidly adherent placenta in the local population.[10] As a result of the findings of this study, patients with a placenta accrete spectrum can be managed with a procedure that has a better success rate in lowering maternal morbidity and mortality secondary to the morbidly adherent placenta. Furthermore, in these patients, hysterectomy can be avoided, and practical advice for managing morbidly adherent placenta using a fertility-preserving approach can be adopted in our standard management guidelines.

METHODOLOGY

The case series was conducted at Combined Military Hospital, Peshawar Pakistan, from December

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2018 to March 2020 after approval was taken from the Institutional Ethical Review Committee (IRB No: ERC/05/2018). The sample size was calculated using the WHO sample size calculator taking expected efficacy as 82.3%.[11]

Inclusion Criteria: All pregnant women of gestational age ≥32 weeks (assessed on LMP) with the morbidly adherent placenta, were included.

Exclusion Criteria: Women with a bleeding disorder, i.e., ITP, DIC (INR>1.2), Women with chronic liver disease (assessed on history and s/bilirubin >2.0 mg/dl), patients with genital tract trauma (assessed on clinical examination), and patients with retained products of conception were excluded.

Informed written consent was obtained from all patients after the aims, methods, reasonably anticipated benefits, and potential hazards of the study were explained to them. After this, a caesarean section was done in each woman by the consultant gynaecologist (at least three years post-fellowship experience), and then the Triple P procedure (perioperative placental localization and delivery of the foetus via transverse uterine incision above the upper border of the placenta; devascularization of the uterus by ligation of both internal iliac arteries and the placental non-separation with myometrial excision and reconstruction of the uterine) was done. Effectiveness in each patient was noted in terms of avoiding hysterectomy. All this data (age, gestational age, parity, BMI, number of caesarean sections, chronic hypertension, pre-eclampsia, place of living) was recorded on a specially designed proforma.

Statistical Package for Social Sciences (SPSS) version 25.0 was used for the data analysis. Quantitative variables were expressed as Mean±SD and qualitative variables were expressed as frequency and percentages. Chi-square test was applied to explore the inferential statistics. The *p*-value lower than or up to 0.05 was considered as significant.

RESULTS

In our study, a total of 56 patients with morbidly adherent placenta underwent the Triple P procedure. The uterus was preserved in 53 of these patients, and only three patients had obstetric hysterectomy, thus showing 94.64% efficacy, as shown in Figure. Baseline characteristics of the patients (age, gestational age, parity, number of previous caesarean sections, hypertension, pre-eclampsia and place of living) are shown in Table I. The age range in this study was from 18-40 years, with a mean age of 30.79±4.42 years. Fortytwo patients (75%) of the patients were at term (37 weeks and beyond), while 14 patients (25%) had to undergo preterm caesarean sections. The mean gestational age was 37.59±1.73 weeks. The majority of the patients (75 %) had parity 2 to 3. 33 of the 56 patients (58.3%) had previously undergone ≤2 caesarean deliveries, while the remaining 23(41%) had undergone more than two caesarean sections. Association of the efficacy of the Triple P procedure (in avoiding hysterectomy) with different parameters is shown in Table-II.

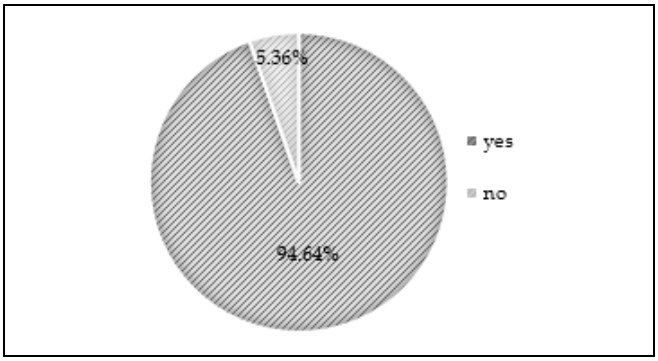

Table-I: Distribution of Patients according to Age, Gestational Age, Parity, Number of Previous Cesarean Sections, Hypertension, Pre-eclampsia and Place of Living (n=56)

Characteristics	n(%)
Age (in years)	
18-30	30(53.75%)
31-40	26(46.26%)
Mean±SD	30.79±4.42 years
Gestational age (weeks)	
32-36	14(25%)
37-41	42(75%)
Mean±SD	37.59±73 weeks
Parity	
2-3	42(75%)
4-5	14(25%)
Mean±SD	3.05±0.88
Number of Previous Caesarean Sections	
≤2	33(58.39%)
>2	23(41.07 %)
Mean±SD	2.00±1.11
BMI (kg/m2)	
>27	44(58.57%)
≤27	12(21.43%)
Mean±SD=	29.04±2.32 kg/m_2
Hypertension	
Yes	19(33%)
No	37(66.07 %)
Pre-Eclampsia	
Yes	17 (30.36)
No	39 (69.64 %)
Place of living	
Rural	29(51.7%)
Urban	27(48.2 %)

Table-II: Association of Efficacy with respect Characteristics (n=56)

Characteristics	Efficacy (Avoidance of Hysterectomy) n(%)		*p*-value
	Yes	No	
Age (Years)			
18-30	29 (51.7)	01(1.7)	0.470
31-40	24(42.8)	02(3.5)	
Gestational Age (weeks)			
32-36	14(25)	0(0)	0.304
37-41	39(69.6)	03(5.3)	
Parity			
2-3	41(73.2)	02(3.5)	0.670
4-5	12(21.4)	01(1.7)	
Number of previous CS			
≤2	31(55.3)	02(3.5)	0.779
>2	22(39.2)	01(1.7)	
BMI (kg/m2)			
≤27	12(21.4)	00(0)	0.352
>27	41(73.2)	03(5.3)	
Hypertension			
Yes	17(30.3)	02(3.5)	0.218
No	36 (64.2)	01 (1.7)	
Pre-eclampsia			
Yes	15(26.7)	02(3.5)	0.161
No	38 (67.8)	01 (1.7)	
Place of living			
Rural	29(51.7)	0(0)	0.065
Urban	24(42.8)	03(5.3)	

DISCUSSION

This study concluded that the Triple-P procedure's efficacy (in terms of avoiding hysterectomy) in managing morbidly adherent placenta is very high. Previous studies show that morbidly adherent placenta is more common in subsequent pregnancies, explaining the patients' older age and higher gravidity.[12,13] The major risk factors of the morbidly adherent placenta are previous caesarean delivery, placenta previa, multiparity, and advanced maternal age. Co-existing placenta previa affects up to 88 per cent of women. Morbidly adherent placenta, if discovered during the third stage of labour or a caesarean section, can cause life-threatening complications such as massive haemorrhage.[14,15] One study discovered silent aberrant placentation in 21.2 percent of peripartum hysterectomy specimens.[16] In our study, the Triple P procedure's efficacy (in avoiding hysterectomy) in managing morbidly adherent placenta was found in 53(94.64%) patients. In another study, the Triple P procedure's effectiveness in managing morbidly adherent placenta and avoiding obstetric hysterectomy was 100.0%.

Placenta accrete spectrum has been managed using the 'Triple-P technique,' a less invasive surgical option than peripartum hysterectomy.[17] Triple-P consists of three steps: perioperative placental localization on the operating table using a transabdominal ultrasound scan to demarcate the upper boundary of the placenta and delivery of the foetus through a uterine incision placed above the upper border of the placenta; pelvic devascularization immediately following delivery of the foetus by ligation of both internal iliac arteries to decrease blood supply to the myometrium.[18] The line of placental infiltration into the bladder is maintained undisturbed since attempts at separation may result in urinary bladder perforation. For the morbidly adherent placenta, myometrial excision has previously been described. However, avoiding incision over the placental bed by delineating the upper border of the placenta immediately before caesarean section and immediate pelvic devascularization before excision of the myometrium helps minimize blood loss.[19]

Technical difficulties with the placenta infiltrating the cervix or the broad ligament, where myometrial excision cannot be performed, are limitations regarding the Triple-P procedure. Furthermore, lateral placentae infiltrating the ureters are not suitable for this technique.[20] Although all of our patients chose peripartum sterilization, there are still concerns regarding uterine rupture and the ideal delivery time if future fertility is sought. Although interventional radiological facilities may not be available in low-resource settings, uterine artery or quadruple ligation can still be used to de-vascularize the pelvis. Therefore, the Triple-P procedure may still be a feasible option.

CONCLUSION

The efficacy of the Triple P technique (avoiding hysterectomy) in handling morbidly adherent placentae was quite high in this study. As a result, we recommend that the Triple P procedure be performed primarily in these patients to reduce maternal complications and mortality from severe haemorrhage. Furthermore, hysterectomy can be avoided in these patients, and this approach should be employed more often in our general practice for managing the placenta accreta spectrum.

Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

SM & NA: Data acquisition, data analysis, critical review, approval of the final version to be published.

SN & HS: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

WY & NH: Concept, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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