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CASE REPORT

Sequential Surgical Steps for Conservative Management of Morbidly Adherent Placenta: Case Series

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ABSTRACT

Objective: Cesarean section rates are increasing with associated increase in placenta previa and accreta. Placenta accreta is a major cause of maternal morbidity and mortality. Our objective was to evaluate of a new method of combined surgical steps in management of morbidly adherent placenta (MAP) to face its burden, psychological and marital disintegration if managed by hysterectomy in our low facilities.

Materials and Methods: In this case series, we evaluated the use of sequential surgical steps for conservative management of 20 cases of MAP as regard the intra-operative and post-operative outcomes in Assiut Women Health Hospital, Egypt from June to December 2014. The sequential steps started by perfect dissection of urinary bladder, then delivery of the fetus followed by exteriorization of the uterus and application of 4 ring forceps on both uterine and ovarian vessels. Trial of placenta removal followed by application of two towels in the uterine cavity to achieve hemostasis. Ligation of uterine artery bilaterally at double low level. Finally, plication of the friable lower uterine segment from anterior wall after removal of towels.

Results: The mean age of the included women was 29.95±4.8 years. All cases had previous uterine scar and placenta previa. Ten cases (50%) had placenta accreta, 8 cases (40%) had placenta increta and 2 cases had placenta percreta. Our procedure was succesfulin all 18 cases of placenta accreta and increta but 2 cases of placenta percreta required hysterectomy. No postpartum hemorrhage in all cases. There were no maternal deaths.

Discussion: This new method was favorable in the management of MAP and decreased the incidence of hysterectomy in cases of placenta accreta and increta.

Keywords: Placenta previa, Placenta accreta, Placenta increta, Placenta percreta, morbidly adherent placenta

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Introduction

As the percentage of cesarean section continues to rise worldwide, the Protocol for dealing with massive obstetric hemorrhage due to morbidly adherent placenta (MAP) is needed in every obstetric unit[1].

Primary and secondary cesarean percentages

are continuing to rise as they have in recent years, by 2020 the cesarean delivery rate will be 56.2%, the annual incidence of placenta previa, placenta accreta, and maternal death will also rise substantially[2].

The prominent feature to suggest placenta accreta in two-dimensional sonography was the presence of multiple lakes that represented dilated vessels extending from the placenta through the myometrium. The most prominent color Doppler feature was the presence of interphase hypervascularity with abnormal vessels linking the placenta to the bladder, and this accounts 95.24% of cases[3].

The term placenta accreta has been used when the placenta was attached directly to the uterine wall with no myometrial invasion, placenta increta is used where placenta was seen invading the myometrium and percreta specifies placental invasion up to or beyond uterine serosa which is associated with severe bleeding during trial of removal of placenta from the uterine wall[4].

Elective hysterectomy while the placenta left in place is the main line of treatment of MAP and it is associated with significant less morbidity if compared with other surgical approaches[5]. This approach is unacceptable to women desiring uterine preservation especially in communities with high fertility like Egypt. There are many techniques that have been reported in the literature described for conservative management of MAP include uterine and vaginal packing with gauze[6], balloon tamponade[7], the B-Lynch suture[8] and suturing antiverted lip of cervix over the bleeding placental bed[9]. Uterine and internal iliac artery ligation has been reported also in management of some cases[10, 11].

In this case series, we evaluated a new conservative method consists of sequential surgical steps for management of MAP and evaluated its effectiveness in preventing hysterectomy in such cases.

Materials and Methods

Twenty women with morbidly adherent placenta were reported in this case series from June to December 2014. They were all presented by different types of MAP at the time of cesarean section. This descriptive study was approved from the institutional ethics committee of Faculty of Medicine, Assiut University. Counseling and explanation of the procedure for every patient and informed consent about the procedure and possible hysterectomy and its complications had been done.

Data of every woman who had diagnosed as MAP was reviewed and recorded, including age, parity, gestational age, number of previous cesarean sections, other uterine surgery, and number of attacks of antepartum hemorrhage.

Intra-operative findings such as placental location, degree of MAP, procedures needed to control bleeding, duration of surgical procedure, estimated blood loss by weighting drapes, sponges and volume of aspirated blood, units of transfused packed red blood cells or fresh frozen plasma, and any surgical complications were reported.

Post-operative outcomes including duration of hospital stay, admission to intensive care unit and maternal mortality were also reported.

Surgical steps:

1. Using pfannenstiel incision as skin incision, opening the rectus sheath transversely and parietal peritoneum longitudinally, then perfect dissection of bladder which was the most important step using meticulous sharp and blunt dissection before delivery of the fetus.

2. If difficulty was encountered, a line of cleavage should be created using sharp and blunt dissection to allowed the bladder to descend away from the lower segment, the highly vascularized lower segment will retract after moving the bladder down and bleeding will stop. If bleeding continued, cauterization or simple ligation was done.

3. Opening the uterus transversely in the lower segment and extraction of the fetus, then exteriorization of the uterus outside the abdomen with packing the bowel behind the uterus, application of 4 ring forceps on both uterine and ovarian vessels; one for every vessel which was atraumatic. This step controlled the bleeding until removal of the placenta. Trial of removal of the placenta was done followed by application of one

towel in the upper uterine cavity and another one in the lower uterine cavity until ligation of both uterine arteries had been completed then the towels were removed.

4. Double ligation of uterine arteries at medial and lateral side, 2 cm apart, this would not be successful if proper dissection of bladder was not achieved, first ligation was 4 cm below the scar.

5. Plication of the friable lower uterine segment from the anterior wall not from inside, this would stopped bleeding from inside completely either with excision of anterior pathological lower uterine segment which had been invaded by trophoblastic tissue or without plication from outside rendered the thin friable lower uterine segment into normal thick coapted one.

6. Plication was started away from the uterine artery to avoid formation of hematoma and plication was from side to side and from up and downward to reinforce the lower segment making it very thick and to avoid further complications.

7. Gel foam was inserted in retrovesical space and closure of visceral peritoneum after good homeostasis was done.

8. Suture materials used were vicryl zero in all steps of ligation and repair. All patients had received 40 unitrs of oxytocin during the operation after delivery of the fetus through intravenous route,10 units of oxytocin and 0.5 ml of methergine through intra myometrial injection and 4 tablets of misoprostol rectally (equal to 800 micrograms) post partum.

Postoperative follow up of all patients was done meticulously through observation of vital signs and urine output and admission to intensive care unit.

Analysis of data was done using SPSS Inc., Chicago, IL, USA, version 21. Qualitative variables were expressed as percentages. Quantitative variables were presented in terms of mean, standard deviation and range.

Results

The mean age of patients included in the study was 29.95±4.81 years (range 25-37 years), while the mean parity was 3.1±1.9. The mean gestational age at the time of operation was 35±4.9 weeks, only one woman were operated at twenty weeks as she was diagnosed as placenta accreta with hydrops fetalis. The mean number of previous cesarean section was 2.8±1.5. Regarding clinical presentation, we found that only 11 women (55%) who were presented by antepartum hemorrhage, others were diagnosed on antenatal follow up visits by ultrasound.

Seventeen cases (85%) had confirmed intraoperatively that they had placenta previa centralis; the last 3 cases had placenta previa anterior. The distribution of MAP was 10 cases of placenta accreta, 8 cases of placenta increta, and 2 cases of placenta percreta with bladder invasion.

Table 1. demonstrates the operative details of the procedure. The average duration of surgery was 90 minutes but in complicated cases it was extended up to three hours due to vascular and urological complication. The mean blood loss was 1600±400 ml blood and all patients received blood transfusion. Mean packed RBC transfusion was 1800±320 ml. Bladder was accidentally injured in 3 cases. No bowel injuries. No postpartum hemorrhage in all cases. Three cases were admitted to ICU. No maternal mortality in our twenty cases.

Table 1. Intraoperative and follow up details for women who were managed with the sequential steps.

Duration of surgery (hours)	1.30±0.22
Estimated blood loss (ml)	1600±400
Intraoperative replacement therapy (ml)	1800±320
Intraoperative complications	Bladder injury (3 cases, 15%)
	Ureteric ligation (1 case, 5%)
Postpartum hemorrhage	0

Table 1. Intraoperative and follow up details for women who were managed with the sequential steps. (Cont.)

Admission to ICU/ duration (days)	3 cases (15%) / 4 days
Relaparotomy	1 case (5%)
Maternal mortality	0

Discussion

The percentage of placenta accreta in the literature varies between 0.001 and 0.9% of deliveries; a rate has increased dramatically over the last years due to increase in cesarean delivery rate[12]. Accreta is the most common form accounting for approximately 75-78% of the women, increta accounts for about 17% of the women, while percreta comprises about 5-7%[13]. In our study, we present a simple sequential surgical steps for conservative management of cases of MAP that can be trained for young obstetricians to deal with such cases.

Currently the management options for MAP include either conservative or radical approaches[14]. The conservative option is leaving the placenta in situ, followed by methotrexate, uterine artery embolization, and internal iliac artery ligation/embolization[15,16]. Methotrexate acts primarily against rapidly dividing cells and therefore is effective against proliferating trophoblasts. More recently, others have argued that, the placenta is no longer dividing and also argue against dose and method of methotrexate administration. However, there are no randomized trials and no standard protocol regarding its dosage. The risk of conservative management was that of sepsis and delayed hemorrhage.

Radical approach consists of immediate cesarean hysterectomy, avoiding placental removal after classic cesarean section and extraction of the fetus. Radical management is associated with significant risk of catastrophic bleeding from abundant vascularization and rich collaterals beyond the efficacy of homeostasis available using current surgical techniques[17].

There are many procedures that have been described to control massive bleeding caused by placenta accreta and to preserve fertility at the same time. According to Courbière, bilateral internal iliac artery ligation was successful in seven reported cases; however, the time and experience needed to perform the procedure may hinder its use, particularly in less equipped hospitals[18].

Compression sutures have been tried frequently to control bleeding from MAP with or without repair of the defective uterine wall[8, 19]. Shahin et al., reported 24 of 26 women in whom hemostasis was secured with compression sutures after bilateral uterine artery ligation. The procedure is simple and less time-consuming; however, two women had disseminated intravascular coagulopathy and died shortly after admission to the intensive care unit[8].

Hwu and colleagues tried the use of parallel vertical compression sutures including the anterior and posterior uterine walls to control bleeding from the placental bed in 14 women with placenta previa and it was reported to be highly effective but only one case of placenta accreta was included[20].

Our sequential method for management of placenta accreta was associated with high favorable success rate in confirmed placenta accreta with no maternal mortality, no PPH, rare operative complications, no need for huge blood transfusion and no negative effect of conservative method which include infection, severe secondary post partum hemorrhage requiring further hysterectomy.

Our method also avoided radical management which was associated with a very high morbidity and mortality and also avoided the psychological problems after hysterectomy and improved marital relationship which depends upon fertility preservation.

The advantage of the procedure described in this series is that it compresses the whole vascular supply of the uterus through the application of ring forceps on the vascular pedicles of the uterus till removal of the placenta then compression of the whole bleeding area

efficiently with the towels inserted in the uterine cavity. Also dissection of the bladder firstly while the operative field was still clean leads to adequate exposure of the lower segment and complete avoidance of any urological injury.

The procedure does not take a long time and does not need special training or equipment. These elements are particularly important in developing countries like Egypt. Also young obstetricians can use them efficiently in management of undiagnosed MAP faced during cesarean section.

Finally, there were no reported complications during the postoperative follow–up, and the amount of blood loss and the number of women admitted to intensive care unit were lower compared with other modalities used in our hospital for conservative management of such cases.

The shortcomings were the limited number of women and the difficulties during long follow-up. In the poor rural areas that we serve, it is difficult to follow-up cases for long term complication assessment.

Conflict of interest

No conflict of interest.

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