Conservative Surgical Management of Placenta Previa and Accreta. A Case Report

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Abstract

Background: Placenta previa is a known associated risk factor for the presence of placenta accreta. Therefore, when there is a diagnosis of placenta previa, there should also be a high suspicion for placenta accreta.

Case: A 32-year-old pregnant woman had massive hemorrhage caused by placenta previa and accreta during cesarean section. She was successfully treated with uterine balloon tamponade and uterine artery ligation.

Conclusion: In order to avoid postpartum hemorrhage and hysterectomy protocols, the alternative bilateral uterine arterial ligation, Bakri balloon tamponade and, if necessary, methotrexate therapy, can be successfully applied.

Keywords: Placenta previa; Placenta accrete; Bakri balloon tamponade; Uterine artery ligation; Fertility sparing

Introduction

It has been advocated that placenta previa in conjunction with placenta accreta and placenta percreta should be managed conservatively to avoid massive pelvic bleeding and to preserve fertility.^[1] Placenta previa occurs when the placenta is inserted partially or wholly in the lower part of the uterus, close to or at the cervical opening.^[2] This area of the uterus has a comparatively rich blood supply and may account for the abnormal occurrence of placental attachment to the lower uterine segment.^[2] Multiple risk factors are found in the development of placenta previa: multiparity, advanced age, previous cesarean delivery, prior uterine surgery, use of cocaine, and smoking.^[2] These risk factors are all associated with the generalized effect of endometrial atrophy. Placenta previa is a known associated risk factor for the presence of placenta accreta. Therefore, when there is a diagnosis of placenta previa, there should also be a high likelihood of placenta accrete.^[3]

Placenta accreta is the dysfunctional attachment to the uterine wall of the entire placenta or of parts of it. The diagnosis of placenta accreta is made when placental abnormalities are

visualized by ultrasound and MRI. Benirschke et al. suggested that placenta accreta is the consequence of failed reconstitution of the decidua basalis after repair of the cesarean incision, thus resulting in the absence of decidua between the invading trophoblast and the myometrium.^[4] It has been proposed that the abnormality of the placenta-uterine interface leads to leakage of fetal alpha-fetoproteins into the maternal circulation resulting in elevated levels of maternal serum alpha-fetoproteins.^[5]

Prenatal diagnosis of placenta increta and percreta is essential to optimize peripartum management and hence avoid potentially life-threatening hemorrhage. Invasive placentation presents significant challenges at cesarean section even for highly skilled surgeons. Placenta accreta is often diagnosed at the time of delivery and is the cause of postpartum hemorrhage, morbidity and mortality.^[6] The standard treatment for placenta accreta is hysterectomy to avoid acute blood loss and shock. A conservative surgical approach to the treatment of placenta accreta ensures immediate cure while preserving the patient's future fertility.^[7,8] When the rate of cesarean delivery increases, a corresponding increase in the occurrence rate of placenta previa and placenta accreta has been observed.

We present a case of a 32-year-old pregnant woman who had a massive hemorrhage due to placenta previa and placenta accreta during cesarean section who was successfully treated with uterine balloon tamponade and uterine artery ligation.

Case Report

A 32-year-old woman with previous cesarean section was referred to our hospital for elective T cesarean section. The sonogram performed earlier during the pregnancy revealed an anterior placenta previa. The patient underwent cesarean delivery but the placenta failed to detach from the uterus.

The obstetrician informed the anesthesia team that there was a placenta accreta and, hence that there would be some difficulties with the prompt removal of the placenta. Preoperatively, the patient was informed about the suspicion of placenta accreta.

The complications and risks associated with this potential diagnosis, including hemorrhage, possible hysterectomy, and the need to convert to general anesthesia had all been discussed with the patient before the procedure. Complete delivery of the placenta, in fragmented segments, was successfully achieved after uterine artery ligation. Estimated blood loss before delivery of the placenta was 1,600 mL; therefore, at this time, the total estimated blood loss was 2,500 mL. After delivery of the placenta, bedside measurement of the patient's hemoglobin revealed a level of 6.3 g/dL, which was communicated to the surgical team. Intraoperative allogeneic red blood cells (1500 mL) and free-frozen plasma (1,200 mL) were transfused.

Ultimately, to achieve hemostasis, uterine artery ligation was required along with the placement of a Bakri balloon (Cook Medical Inc, Bloomington, Indiana). A Bakri balloon is a type of intrauterine balloon that can be inserted to tamponade uterine vessels. These measures were successful in achieving hemostasis. Fifteen minutes before case completion, a repeated bedside hemoglobin measurement revealed a level of 7.1 g/dL. Time from removal of the placenta to abdominal closure was 1 hour and 15 minutes.

At 24 hours from surgery the tube was removed from the patient. Transvaginal ultrasonography showed no residual placenta in the uterus. The patient's beta human chorionic gonadotropin (beta-hCG) level was 5mIU/mL and hence there was no need for methotrexate therapy. The postoperative course was uneventful and the patient was discharged on day 7 in good condition.

Discussion

All the forms of abnormal placentation are associated with massive hemorrhage which may lead to hypovolemic shock or to disseminated intravascular coagulopathy at delivery, which increase maternal morbidity and mortality.^[9] Placenta praevia along placenta accreta, which is a condition dreaded by obstetricians throughout the ages, presents new challenges in modern times.

Over the last decade, its management has changed from the old interventionist dictum of never leaving any part of the placenta in utero, to a more conservative approach. Various forms of conservative management of placenta accreta have been reported in the literature including localized resection of the placental bed and administration of methotrexate after leaving the placenta in-situ after delivery.^[10] In most of these cases, surgical intervention, including delayed hysterectomy and manual removal of the placenta, was also employed. Due to the paucity of cases, the patients were not managed on a standard evidence-based protocol but on a case-by-case basis.^[11]

On the basis of our experience, we propose that uterine artery ligation with intrauterine Bakri balloon tamponade can avoid hysterectomy in patients with placenta previa accreta. First, bilateral hypogastric artery or uterine artery ligation should be performed in order to mitigate the bleeding after removal of the placenta. This procedure reduces bleeding which

can be appropriately managed by the surgeon.^[12] Disseminated intravascular coagulation may also be avoided in this way. After bilateral uterine artery ligation the placenta should be removed. If necessary, the placenta should be cut from the myometrium. After removing the placenta, the uterus wall should be evaluated. It's important that the uterus serosa has no defect, even when small placental residues exist in the uterus wall. The application of the Bakri balloon and bilateral uterine ligation to these patients eliminates the need for hysterectomy and it prevents life-threatening bleeding.^[13] With this method, the uterus and the patient's fertility are protected.

We successfully managed other two cases of placenta previa and accreta by achieving hemostasis with an intrauterine Bakri balloon and uterine artery ligation, and found there was no need for hysterectomy. Following this success, the possibility of conservatively managing placenta previa and accreta using this combination was discussed in our department. Recently, another centre reported a much larger series of patients with placenta accreta managed using a similar conservative approach.^[14]

Conclusions

Our approach consisting of bilateral uterine arterial ligation and Bakri balloon tamponade and, methotrexate therapy, where necessary, has proven to be successful in avoiding postpartum life-threatening hemorrhage, hysterectomy, post partum endometriosis and peritonitis. In conclusion, our experience indicates that conservative methods can be considered to be an option in the management of selected cases of pregnancy at high risk for intrapartum hemorrhage.

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