

Conservative and surgical treatment of abnormal placentation: Report of five cases and review of the literature

M. Kazandi

Department of Obstetrics and Gynecology, Ege University Faculty of Medicine, Bornova, Izmir (Turkey)

Summary

Abnormal placentation is a serious complication of pregnancy. The disorder is also associated with significant maternal morbidity. Abnormal placentation, comprised of placenta accreta, increta, and percreta, is a leading cause of postpartum hemorrhage and indication for gravid hysterectomy. We present five cases of successful conservative and surgical management of abnormal placentation managed at our institution, together with a review of the literature.

Key words: Abnormal placentation; Cesarean hysterectomy; Hemorrhage.

Introduction

Adherent placenta is one of the major causes of hemorrhage during pregnancy [1]. Adherent placenta is known as abnormal attachment of placental villi through the uterine wall. It has three distinct groups known as placenta accreta, increta and percreta [2]. The etiology is unknown but the incidence of adhesive placenta increases with advanced maternal age, history of previous cesarean section and placenta previa totalis in pregnancy [3]. The major problem with placental adhesive disorder is massive hemorrhage. We report five cases at risk for obstetric hemorrhage because of adherent placenta and placenta previa totalis.

Case Reports

Case 1

A 33-year-old multi gravida was admitted to our department because of vaginal bleeding. She was at 28-29 weeks of gestation. She had had a regular antenatal follow-up with two previous cesarean sections. In her physical examination vaginal bleeding was determined. Obstetrical examination at admission showed a 28-29 week uterus without signs of active labor. When she was at 32 weeks of gestation, cesarean section was performed and a 1,800 g live baby was delivered with an apgar score of 1 and 5 min of 10 and 10, respectively, because of vaginal bleeding and being in active labor. Before cesarean section, magnetic resonance imaging (MRI) was performed. In MRI placenta previa totalis and increta was reported. Within the operative exploration both myometrial invasion and serosa-bladder adhesions were observed. Bilateral uterine and hipogastric arteries was ligated after delivery and the operation was ended. Three units perioperatively and three units postoperatively red blood cell packages were transfused. In the postoperative period hysterectomy was performed by explorative laparotomy because of unpreventable vaginal bleeding.

Case 2

A 28-year-old primigravida was admitted to our department for a planned cesarean section. She was at 35 weeks of gestation. She had had regular antenatal follow-up with no remarkable medical or physical findings. Obstetrical examination included a 35-36 week uterus that was not in active labor with an intact amniotic membrane. When she was at 36 weeks of gestation, elective cesarean section was performed and a 3,000 g live baby was delivered with an apgar score of 1 and 5 min of 8 and 10, respectively. MRI, which was performed before the cesarean, showed placenta previa totalis. Myometrial and serosal invasion were also noted. In gray scale ultrasonography (US), more than six irregular and large placental lacunae were defined. There were no focal exophytic masses invading the bladder serosa and wall. The hyperechoic serosa-bladder interface was not intact. The subplacental sonolucent area was irregular. A hypervascular serosa-bladder interface was seen. With these findings we supposed the case was placenta percreta. Pre-operative exploration was both definitive and diagnostic of pathology. Placenta percreta was suspected before delivery. After delivery hysterectomy was performed. Five units of red blood cells were transfused perioperatively. No postoperative complication was observed. The patient was discharged on the fourth postoperative day with a healthy baby. Pathological examination confirmed the clinical and surgical diagnosis as placenta percreta.

Case 3

A 38-year-old gravida 7, para 4 women was admitted to our department because of vaginal bleeding. She was at 31-32 weeks of gestation. She had had regular antenatal follow-up and a previous cesarean section. Obstetric examination included a 31-32 week uterus that was not in active labor. In her physical examination only vaginal bleeding was determined. Cesarean section was performed with a median incision below the umbilicus and a 2,200 g live baby was delivered with an apgar score of 1 and 5 min of 8 and 10, respectively. Before cesarean section MRI was performed and placenta previa totalis and placenta increta were determined. After delivery the placenta was not separated so hysterectomy was performed. Pathological examination revealed placenta percreta.

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Case 4

A 34-year-old gravida 2, para 1 pregnant woman was referred to our department because of the diagnosis of placenta previa totalis and placenta percreta. She had had a previous cesarean section and a regular antenatal follow-up. Obstetric examination showed a 38-week uterus that was not in active labor. MRI reported myometrial invasion with the suspicion of bladder wall invasion. An elective cesarean section was performed with a median incision below the umbilicus. Operative exploration was definitive and diagnostic of pathology. Bladder invasion was seen before delivery. An oblique uterine incision was done close to the fundus of the uterus and a 3,000 g live baby was born with 1 and 5 min apgar scores of 8 and 10, respectively. Hysterectomy was not performed because of the tight bladder invasion. The placenta was left in the uterus and the operation was completed. After the surgery methotrexate was given five times with the dose of 100 mg for each treatment. However the placenta did not separate from the uterus after all the medical therapy. Thus second-look laparotomy was done 50 days later and the placenta was separated by sharp curettage.

Case 5

A 28-year-old gravida 2, para 1 pregnant woman was hospitalized in our department because of placenta previa totalis and placenta percreta. She was at 32 weeks of gestation and she was in active labor. Obstetrical examination showed a 32-week uterus and the amniotic membrane was not intact. She had had a previous cesarean section. She had had regular antenatal follow-up in our department and when she was at 28 weeks of gestation MRI was performed. At MRI placenta previa totalis and placenta percreta were shown. There was also a report of bladder invasion at MRI. Gray scale and color Doppler US were also performed and findings revealed the case was placenta percreta with bladder invasion. A medial incision below the umbilicus was performed and in perioperative exploration there was no sign of bladder invasion but myometrial invasion was noted. A 1,800 g live baby was born with 1 and 5 min apgar scores of 8 and 10, respectively. The placenta was not separated and hysterectomy was performed. Three units of red blood cells were transfused. The patient was discharged on the fourth post-operative day without complications.

Discussion

Adherent placenta is an implantation defect characterized by the placental villi growing into the myometrium and serosa [4]. There is an absence or deficiency in Nitabuch's layer or decidua basalis. It has three distinct subgroups known as placenta accreta, increta and percreta. The incidence of adherent placentation varies from one in 540 to one in 93,000 deliveries [5]. Adherent placenta is one of the major causes of obstetric hemorrhage and it is associated with an increasing number of cesarean sections.

The etiology of adherent placenta is unknown. It may be related to damage of the decidua basalis, which allows placental invasion into the myometrium. The barrier function of the decidua is absent and invasive trophoblasts may invade the myometrium. Several conditions are associated with abnormal placentation; placenta previa, a previous cesarean section, multiple pregnancies, a history of dilatation and curettage, a history of manual

extraction of the placenta, high parity and advanced maternal age [6]. These may be named risk factors, but they are rarely the sole cause of adherent placenta. In recent studies in women with placenta previa totalis, the adherent placentation risk ranges from 2% to 39% with maternal age older than 35 and two or more previous cesarean sections [2]. The rising cesarean section rate may be the cause of an increased rate of placenta percreta in recent years.

In all five cases the patients had placenta previa totalis. In cases 1, 3, 4 and 5 the patients had a history of damaged decidua basalis.

The diagnosis of adherent placenta is difficult, but very important due to the possible fatal and maternal outcomes. It is a significant risk factor for maternal and fetal mortality. Several diagnostic modalities have been introduced in recent years. These include transvaginal and transabdominal US with color Doppler imaging [7-9] and MRI. In gray scale US the subplacental sonolucent zone, regular hyperechoic serosa-bladder zone and lacunae are significant in the diagnosis of adherent placenta [10, 11]. An irregular and thick subplacental sonolucent zone and large, irregular and more than six lacunae with turbulent blood flow can be seen [12, 17]. It has been suggested that the single most important factor affecting outcome is antepartum identification of abnormal placentation [18]. This represents a possibility of accurate planning of labor. It is important for the obstetrician to be aware of the different strategies of management.

In all five cases we performed MRI imaging and two of these cases were also studied by US. In cases 2 and 5 the gray scale and color Doppler US findings indicated placental adhesion disorders, where the placenta was not separated and hysterectomy was performed.

Two main options have been introduced for the management of placenta percreta [19-22]: surgical removal of the uterus and involved tissues, and conservative therapy [23-25]. The latter includes, leaving the placenta in situ with packing, piecemeal blunt dissection with packing, uterine curettage with packing, closing of the uterine defect, localized excision and uterine repair, uterine packing with uterine and even hypogastric artery ligation, and adjuvant chemotherapy [22-25].

Hysterectomy has been the traditional treatment for placenta percreta [4, 20]. This is based on the belief that conservative treatment gives a much higher maternal mortality rate. Conservative management is beneficial in preserving future fertility, and may reduce the need for transfusion [19, 23-25].

We performed a median abdominal incision below the umbilicus and uterine incision close to the uterine fundus in all five cases. In case 4 we could not perform hysterectomy and did conservative therapy. We left the placenta in situ and ligated both the uterine and hypogastric artery bilaterally and continued with methotrexate treatment. However the result was not satisfactory. We performed second-look surgery and separated the placenta with uterine curettage.

The main complication of placenta percreta is severe

bleeding [18]. Other serious complications are rupture of the uterus, coagulation problems, invasion of adjacent organs, uterine inversion secondary to attempted manual removal of the placenta, fistula formation and loss of reproductive organs [11, 14, 17, 18].

The wish to preserve fertility and control bleeding during the operations made it possible to choose a conservative surgical technique.

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Address reprint requests to:
M. KAZANDI, M.D.
Ege University, Faculty of Medicine
Department of Obstetrics and Gynaecology
Bornova, Izmir 3100 (Turkey)
e-mail: mkazandi@yahoo.com